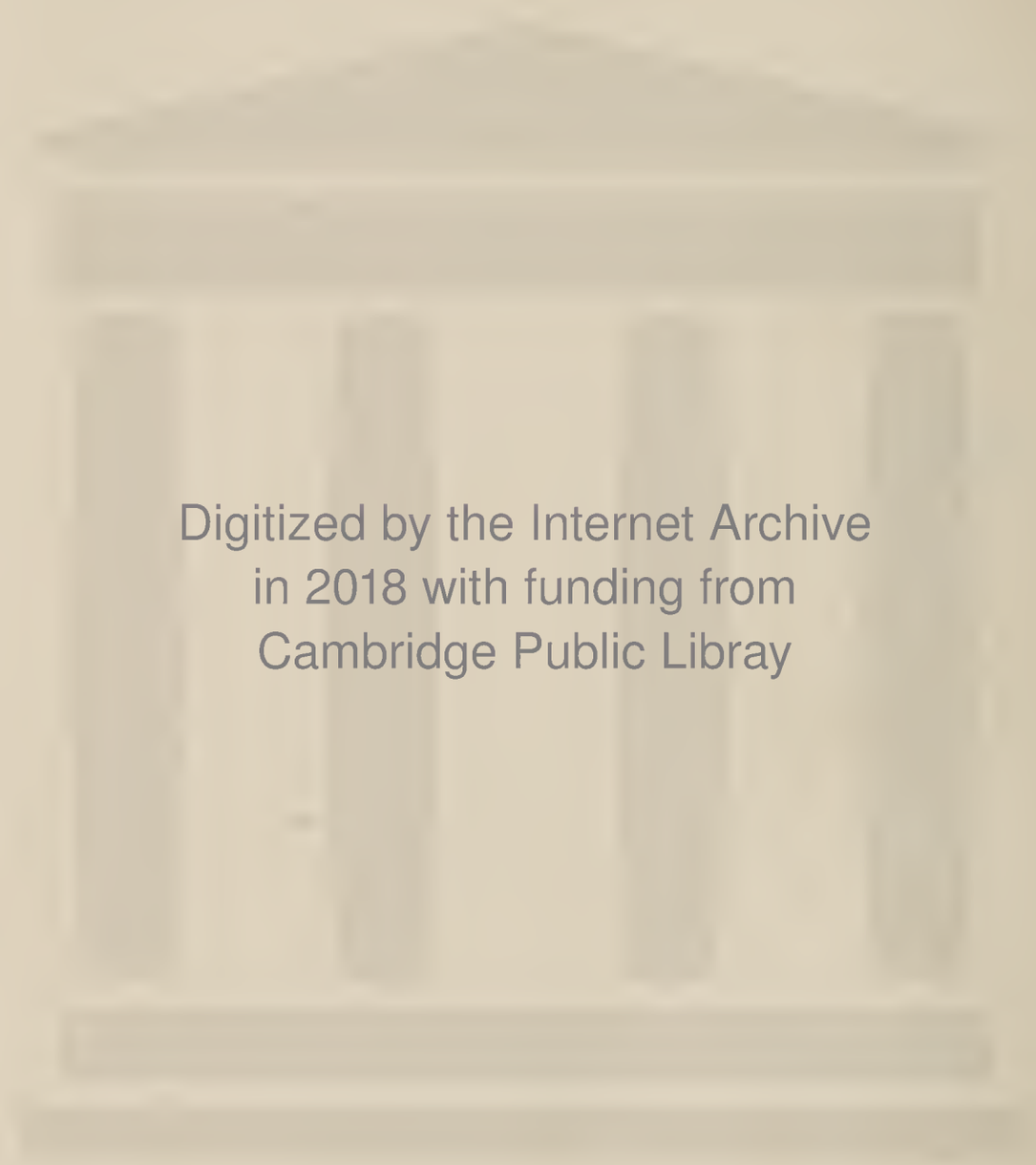

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City of Cambridge.

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THE

MAYOR'S ADDRESS

AT THE

Organization of the City Government,

AND THE

ANNUAL REPORTS

MADE TO

THE CITY COUNCIL.

CAMBRIDGE:

PRESS OF JOHN WILSON AND SON.

1873.

CITY OF CAMBRIDGE.

In Common Council, *January* 8, 1873.

Ordered, That twelve hundred copies of the Mayor's Inaugural Address, together with the Annual Report of the Committee on Finance, made to the last City Council, with the accompanying documents, and such other documents as have been ordered to be printed by the City Council, be printed under the direction of the City Clerk, for general distribution.

Sent up for concurrence.

Attest: J. WARREN COTTON, *Clerk.*

In Board of Aldermen, *January* 8, 1873.

Concurred.

Attest: JUSTIN A. JACOBS, *City Clerk.*

January 10, 1873.

Approved.

ISAAC BRADFORD, *Mayor.*

ADDRESS

OF

HON. ISAAC BRADFORD,

MAYOR.

Gentlemen of the City Council of Cambridge: —

We are assembled, intrusted by our fellow-citizens with the conduct of the affairs of the municipality for the ensuing year. This distinction confides in our judgment and fidelity, and engages us to conserve the public health and safety, and see that the City's credit be maintained in an economical and rightful expenditure of the levied moneys. Individual interests we are to subordinate to public requirement, and give direction to the advancement of necessary works of improvement. That there will be an avoidance of irregular action, and that prescribed forms of procedure will be strictly adhered to, cannot be doubted in the presence of the gentlemen whom I have the honor here to meet, and over whose deliberations the people have so generously elected me to preside.

In conformity with custom, I will now briefly present you a general statement of the condition of the City,

together with such recommendations as have occurred to me to be worthy of your consideration, — beginning with the subject of

FINANCE.

Total appropriations for 1872	$1,713,395.00
Total expenditures	1,284,314.34
Unexpended balance	$429,080.66

This balance, it must be clearly understood, has no existence as a cash asset; the above appropriations only representing an authorization during the term of the previous City Council to engage an expenditure to such defined limit, and contracts accordingly were made quite equalling the amount.

The amount of permanent debt Dec. 1, 1871, exclusive of Trust Funds and Water Loan, was	$918,000.00
State and County tax for 1871	88,682.40
Unpaid approved bills, and interest due	927.78
Sum	$1,007,610.18

Amount of permanent debt, Dec. 1, 1872, exclusive of Trust Funds and Water Loan	$1,128,635.68
State and County tax for 1872	92,548.74
Unpaid approved bills, and interest due	1,259.27
Sum	$1,222,443.69

The difference between these two sums shows the increase of debt for the fiscal year 1872 to be	$214,833.51

There was also a cash balance in the Treasury, Dec. 1, 1871, of	$108,865.70
Existing balance, Dec. 1, 1872	5,648.26
Reduction in cash balance	$103,217.44

The total debt of the City is found to be as follows, Dec. 1, 1872: —

Trust Funds	Daniel White Charity	$5,000.00
	Dowse Institute	10,000.00
	Sanders Temperance Fund	10,000.00
City Bonds		722,000.00
Water Bonds		938,400.00
Sundry notes of the City		406,635.68
State and County tax for 1872		92,548.74
Unpaid approved bills, and interest due		1,259.27
Total debt		$2,185,843.69

As offset to this indebtedness: —

General Sinking Fund	$40,110.51
Water Works Sinking Fund	129,348.17
Total	$169,458.68
Balance between liabilities and assets	$2,016,385.01

The sundry notes of the City included in the above exhibited debt are as follows: —

On demand (given to fulfil requirements of Sinking Funds)	$75,635.68
Coming due in year 1873	235,000.00
" " " " 1874	62,000.00
" " " " 1875	4,000.00
" " " " 1877	30,000.00
Total	$406,635.68

The notes that come due the present year are thus distributed: —

On demand (including unpaid bills and interest due)	$76,894.95
In January (the major part immediately)	55,000.00
" March	60,000.00
" May	20,000.00
" October	100,000.00
Whole amount due in 1873	$311,894.95

This amount we have to provide for in payment; as also for the payment this year of a bequeathed indebtedness of $770,000.00, being balance due on outlying contracts, ordered and begun under the authority of the late City Council.

These unfinished contracts now under process of completion are as follows: —

ENGINEER DEPARTMENT.

Sewers	Harvard Street	$40,000	
	Pleasant Street	10,000	
	Vassal Lane and Concord Avenue	30,000	
Washington Street District (grading)		162,000	
Balance of awarded damages in said district not yet paid		44,000	
			$286,000

STREET DEPARTMENT.

Sidewalks on Forest and Frost Streets	$4,000	
Order passed in December for paving portions of Bridge and Cambridge Streets	67,000	
		71,000

WATER WORKS.

New house, engine, boilers, pumps, and mains	113,400
Total	$470,400

To this is to be added the sum necessary for carrying through the work of raising to grade the three low-land districts other than the Washington Street one, for which preliminary orders have been issued, estimated cost, $300,000.

This grand total of $770,000 will thus have to appear in this year's bill of appropriation, occasioning an increase of debt to an equal amount, for the contracting of which this City Council can in no way be holden responsible. And further: over a million of dollars' worth of bonds will have to be sold to satisfy all these demands, independent of the sale of any others we may decide to issue for works especially undertaken by ourselves.

Out of all the bonds authorized during the past year, only $15,000 worth of ten-year low-land bonds have been negotiated, and none of the Water Bonds that should properly have been issued to meet the cost of water extensions in 1872, amounting to $85,238.41.

The tax for the year was laid at $12.00 per thousand, which, minus the four per cent. discount allowed for payment made previous to Oct. 11th, netted the rate at $11.52, being lower than for any year intervening since 1864. This was accomplished by carrying all appropriations partaking of the nature of permanent improvement directly to the account of debt, with the intention of funding in long term bonds, redeemable in a series of annual instalments, agreeably to the provisions of the Sinking Fund created for the purpose. By the establishment of this Sinking Fund, the opportunity avails for carrying through to immediate completion objects of pressing importance and magnitude, while at the same time the present is relieved of the burden of entire expenditure, by distributing, as justly belongs, the responsibility over a number of years. Great caution, however, is to be used in the application, not to swell the debt so enormously as to ren-

der excessive the annual amount of interest and assessment required to be furnished. For in the operation of a Sinking Fund public credit becomes established; and, with an enjoyed public credit, public prodigality may attend, only to end ultimately in financial exhaustion.

WATER WORKS.

By the Report of the Water Board we learn that there has been expended during the past year the sum of $85,238.41 for extensions; making the total cost of the Works up to Dec. 1, 1872, to be $1,030,384.86. The receipts from takers in 1872 amounted to $127,201.30, being an increase of $15,418.65 over those for 1871; and tripling the 1866 income (the first year after purchase), when it was but $40,000.00. The balance between receipts and expenditures shows a gain of $54,426.98 for the year, being still in excess of gain for 1871 by about $10,000.00.

This certainly bespeaks good management and profitable investment; and, whilst it assures the rapid extinguishment of the Water Debt, would seem to permit the carrying out in safety of some after extensive additions.

It had been intended to dredge Fresh Pond of vegetable matter, and connect it with Little and Spy Ponds. The high stage of water, however, consequent on the copious rains of the season, has postponed the work.

The request is renewed that petition be made to the Legislature, —

"1. For leave to raise the Ponds above high water mark, and shut out the fish.

"2. To be permitted to take water from such streams in this county (the right of which is not already granted to others) as we can bring to advantage to reinforce our present water supply."

The importance of obtaining these concessions is so obvious as to need no enlargement. There has been a decrease of over 12,000 gallons per day in the quantity of water pumped: accounted for by the getting rid of decayed and leaky pipes, and by reduced amount used in watering streets. Five miles of pipe have been laid, and three more drinking-fountains placed. The new building that is being erected at the pond for an engine-house will be completed during this year; and will furnish room for the introduction of three large "Worthington" pumps, with a combined daily capacity of from fifteen to twenty millions of gallons.

The Board recommend that, for the sake of additional security against fire and damage to takers through accident, a duplicate pumping main from the engine-house to the Reservoir be laid; and also a new distributing main from the Reservoir to the extreme of the city.

As no controversy can exist regarding the vital necessity of being freely supplied with pure and wholesome water, not only in the present, but for the future, with its probable enlarged demands, that course which consults the means of obtaining an enhanced and full supply naturally commends itself to every dictate of prudence and far-seeing judgment.

Not only is it required to make provision for domestic wants, and be prepared in the stress of fire, but the large

steam consumption of our numerous manufactories must be amply provided for.

In the above recommendations of the Board, these several requirements are intended to be met; and though the accomplishment shall involve large expense, yet the seriousness with which the need is regarded calls for our fullest attention.

The Board also advises that power be given it to make contracts for pipe during the winter in advance of the appropriation, as purchase can be more advantageously effected then than at any other period. Such a course would not call for an immediate payment, but simply engage a delivery.

Satisfaction is further expressed at the drain commenced in Vassal Lane, and reference made to the growing want of a sewer entirely surrounding the Pond, in consequence of the increasing population on its borders.

Altogether, the known reputation of the Water Board entitles its views to especial consideration.

SCHOOLS.

Our schools, models in the system embraced, continue to enjoy a high reputation, and are in an extremely flourishing condition.

There are at the present time 7,000 scholars in attendance on them, under the instruction of 165 teachers. The number of our school children increases at the annual rate of about 400. This rapid increase necessitates the building of a commensurate number of school-houses; and it

is estimated that on the average one new building a year will have to be provided for the next ten years to come.

The past year has seen three school-houses begun in 1871, finished and occupied: namely, Harvard Grammar, Cambridgeport; Gore Primary, East Cambridge; and Wyman Primary, North Cambridge; accommodating in the aggregate 1,250 pupils. The first two are substantial brick buildings, the latter a wooden structure, containing four rooms. With the completion of these buildings, the more immediate necessities are satisfied; and there now comes to be considered the judiciousness of making extended alterations in the interior arrangements of the Webster and Allston Grammar Schools, and of the Willard and Sargent Primaries. Each of the Grammar Schools named contains 625 scholars, who are divided between five rooms, with 220 in a single room, when no more than 60 should ever be classed together, — this not only as a matter of prudence in health, but as a question of economy in instruction. The two alterations will cost perhaps $30,000. The Willard Primary is overflowing with pupils, and it is proposed to finish off the third story into four rooms, at an expense of $3,000. The Sargent Primary has two large rooms, which it is required to divide into four, — estimated cost, $1,500. There are also five school-yards that need paving. The present year seems to be an opportune one for doing this work, — shall it be decided upon, — there being no new school-houses asked for.

While the Primary and Grammar Schools instruct the youth, there are Evening Schools for adults, that meet a want happily. They are divided between the sexes, and

hold session on two evenings in the week during the winter months, counting an average attendance throughout of 250 scholars, ranging in age from fifteen to forty. The cost of maintenance is economically met. We also have an Industrial School established by law, which has been in session for two years, though now temporarily suspended, awaiting some permanent quarters where articles of value and necessity to the studies may be systematically and securely arranged, when it will be resumed. And besides we have a Training School, of which much has been said, and somewhat in unfriendly criticism: to me, however, its object seems most excellent. Supported at an extra cost of only $1,200, and serving the additional purpose of a primary school, it affords the opportunity to young ladies, graduates of our High School, to become instructed in the theory of teaching, by having explained to them the principles they are hereafter to elucidate, and has for its aim the supplying Cambridge schools with able and intelligent teachers; thus forming an important part of our school system entitled to encouragement.

One matter referred over by the preceding City Council presents for our action, being the proper disposition of truants. By ordinance, truants are sent to the Almshouse, and there by necessity brought in contact with idiotic and dissolute inmates, to be contaminated by vicious teachings. That this may be avoided is the purpose of the inquiry as to "the practicability of making such alterations in the Almshouse as shall admit of the safe and suitable care and custody of juvenile offenders therein, separate from the adult inmates." School discipline requires the correction

of truants, but it becomes a defeat of education to subject them to corrupting influences.

The expenditures have been as follows: —

For general instruction	$133,497.66
Evening schools for adults	3,382.79
Care and repair of school-houses	33,106.64
New school-houses and alterations	65,385.74

Making in round numbers $235,000, — a sum that may seem large, but when it is considered with reference to the direct material benefits resulting to society through the generous education of youth, by rearing up useful, intelligent, and well-intentioned citizens, there can be no other decision than to extend a cordial sanction, and cheerfully meet the demand.

POLICE.

The Police Department consists of 47 members, including its Chief, being a suffered reduction of three patrolmen and clerk from the number of a year ago, ostensibly in the interest of economy. The annual expenditure has amounted to $58,293.28. 1,687 arrests are reported as having been made during the year, and 1,441 lodgers cared for at the several station-houses. The falling off in arrests from the year before is remarked upon by the Chief as showing increased respect for and obedience to the laws, — a just conclusion if all offenders have been caught. The death of one member has occurred, in the person of Mr. Charles J. Marvin, to whose memory the Chief of Police

pays the just tribute of his having been an efficient and gentlemanly officer.

That a police force is necessary to the administering of civic government will not be disputed, no more than that its efficiency depends immediately upon its composition and organization. In respect to the first element, we are particularly fortunate in possessing officers who, in the main, are reliable and excellent men. However, there are recognized defects in organization — we are endeavoring to satisfy too much upon too restricted a basis. Truant service by police officers should be discontinued, — referring the matter to the School Committee for their control, — and with additional officers employed, two night reliefs formed instead of the single night relief of the present arrangement. However, shall it be deemed inexpedient at this time to consider so definite a change, entailing as it will about thirteen thousand dollars extra annual expense, I would then earnestly recommend that the force be at least restored to what it was before the three officers were dropped.

The manifest imprudence of making more than a general allusion in this open manner restrains me from particularizing the necessities that exist, and which are growing more imperative every day; but with the enlarged duties of the police officer, the increasing population of the city, and the extended area of its limits, I feel that distinct causes urge an increase that can hardly with safety be longer delayed.

In the Fourth Ward land has been purchased at the corner of Western Avenue and Green Street, and plans

have been prepared for the erection of a Police Station, with adjacent quarters for the Hook and Ladder Company, as also for a Ward Room.

This will remove the police from the cellar of the City Hall, — a change that it is quite time should be made, — and, further, will result in giving increased accommodations to Steamer Company No. Two, by the surrender of the Ladder Company's present share of room in the building they now conjointly occupy. It only remains with us to make the needed appropriation, and carry through the work.

A most valuable adjunct to police service is to be found in the Dial Telegraph. Wherever introduced, it has proved itself indispensable, and particularly so would it be to us with our large territory. It could be led throughout the city, using the present telegraph-poles, and an instrument placed in each of the Station-Houses, with one in the Engine-House at Fresh Pond, for a sum not exceeding $2,500, and then be made to answer the purposes not only of the Police, but also of the Fire Department and Water Works.

POLICE COURT.

If we would preserve a high, impartial, and respected administration of justice, the judicial presence should at least be surrounded with the ordinary dignities of office. To require officers of the Court, witnesses, and audience to associate in intimacy with culprits by reason of ill-provided room, is to challenge criticism not only on grounds of health and comfort, but on the no less forcible one of propriety.

The former appointments of our Police Court have existed as a reproach to the City; and though the present location in the upper apartment of the engine-house at East Cambridge may be an improvement in the way of room, yet it is a single one. For in the removal of the Court from Ward One, where until last summer it had been holden for many years, a real complaint has been furnished in the exceeding inconvenience occasioned to residents of other Wards having call in attendance on it, by reason of remoteness and troublesome access. Its location should be unquestionably as heretofore near the horse-railroad centre; and there suggests no more advantageous site than the adjacent one previously selected in Brattle Square.

The necessity for a proper Court-room is not alone. There should be better quarters provided for the Police and Engine Company in Ward One; and the plan presents of selling the property on Church Street, and then uniting Police, Engine, and Court in one accommodating building erected on the site mentioned, if it shall still be open for purchase.

I ask that you be pleased to give this matter the early attention it deserves; and would further recommend that, for reasons above stated, the Court be at once returned to Old Cambridge, and temporary quarters hired.

FIRE DEPARTMENT.

The Fire Department consists of eighty-four members, and possesses four steam fire-engines, one hook-and-ladder truck, and eight thousand feet of service hose.

The entire expenditure of the Department for the past year, including extraordinary expenses for extra equipment, has amounted to $42,373.56, the actual running expenses being $33,081.00. The Chief Engineer reports the whole loss by fire during this period as $146,084.00, upon which there existed insurance of $117,484.00, leaving a net loss over the insurance of $28,600.00.

He calls attention to certain necessary changes that require to be made in the engine-houses, particularly in Wards One and Four, to render them comfortable and convenient for use. And he recommends the purchase of an additional steam fire-engine, and that a company be organized to take charge of it, as also another hook-and-ladder truck, with the formation of a horse hose-company, and the purchase of 3,000 more feet of hose; and further calls attention to the careless construction of buildings throughout the city, and the consequent great danger from sweeping conflagrations, with the suggestion that a stringent ordinance be passed in regulation of the evil. His report is a very careful and interesting one, and will bear a critical reading.

We may congratulate ourselves upon exemption from any large or disastrous conflagration during the past year. This is to be credited partly to good fortune, but more particularly to the thorough efficiency of the Fire Department. It is recognized that there have been two or more occasions quite recently where, but for the promptness and excellent good management displayed, fires might have ravaged beyond after control.

The sad experience of the neighbor metropolis prompts

us anew to make every provision that foresight can suggest, in the completeness of apparatus and in the way of preserving the health and comfort of members. All the engine-houses should be provided with elevated hose-towers for the proper care of the hose, and bath-tubs inserted for the necessities of the permanent men who there make their homes. The purchase of a large and extra quantity of spare hose should be fully authorized, and Lowry hydrants introduced in our streets wherever the size and flow of the water-pipes will admit. Whatever money we shall expend upon the Fire Department will not exceed the loss that might occur in the destruction of a single one of our well-appointed and leading manufactories. Prevention is always superior to cure, and a wise prevision never fails to avoid after regret.

In the person of our Chief Engineer we have a capable and successful officer. The Board of Engineers is unexceptionable, being composed of experienced and competent firemen; whilst the corps is actuated by that generous emulation so conducive to strength and *morale*.

It gives me pleasure to speak thus encouragingly of the Fire Department; for there is no alarm more painful than that proceeding from the presence of uncontrollable flame, and no knowledge so quieting as that the means are at hand for its speedy quenching.

ENGINEERING.

The department of Engineering, which is one of great responsibility, has been maintained the past year at a cost

of $7,271.44, being a very moderate sum for the large amount of valuable work performed by it.

The City Engineer, in his full and elaborate Report, presents in detail his labors as directed upon sewers, streets, sidewalks, cemetery, water-works, and special matter of Washington Street district. He states the length of sewers built during the year to be 3.6 miles, with attached man-holes, gate-chambers, tide-gates, and catch-basins, costing in full $78,630.37.

There are now 40.7 miles of sewers in the city, built at a total cost of $387,644.98: this excepts private drains and sewers in process of construction. He suggests that Alewife Brook be improved as a sewer outlet, by being cleared from the Almshouse to Fresh Pond; and a sluice-way with tide-gates erected at the falls north-easterly from the Avenue, so that impurities may be diverted from the pond, and better results obtained for drainage at Concord Avenue. He also recommends that a new trunk sewer be laid for taking the surplus drainage from that section of the city lying westerly from North Avenue, which the overcharged sewers of Sparks and Bath Streets fail to relieve. And in conclusion he refers to the necessity for relaying the sewer in Cambridge Street, east of Prospect Street, in order to perfect the system of drainage as advised by the Joint State Commission, and which I understand to accord with his own previously expressed ideas on the subject.

SEWERS.

The health of a community depending directly upon its sewage, it becomes of first importance that, having a comprehensive system devised, it shall be carried through to a rapid and thorough completion. The topography of our city presents difficulties requiring high engineering skill in this regard.

Tide-gates and retaining-basins have to be resorted to, and grades preserved with unerring accuracy. From the remoter and higher levels, the river as an outlet has to be reached by means of drains of large capacity; these forming our trunk sewers into which the lateral and subsidiary drainage flows. The construction of these mains is necessarily costly; and the question has arisen of how their cost shall be assessed. A method, intended at once to reimburse the treasury and extend relief to the immediate abutters, has been applied, by imposing a part of the burden upon lands remote, but regarded as indirectly benefited.

This in its operation has met with great disfavor, — those parties removed from the trunk protesting on various grounds against such assessment. Without, however, presenting any of the different arguments advanced in conflict, I cannot refrain from saying that the time appears to have arrived when an entire change of system will prove in the highest degree acceptable to the majority of the people: in the abandonment of the present one of assessment, and the adoption of the suggested plan by

which the city shall build and own all the drains as now, embodying their cost in a funded loan, and afterwards charging a fixed fee for entrance in accordance with the provisions of Sec. 19, amended charter.

In fact, there can scarcely be any other course in wisdom now to pursue; for with the existing ordinance providing a sinking fund, it is made imperative that all fees for entering and all assessments on sewers shall inure to the benefit of said fund; the practical operation of which, in the absence of the formation of a sewer loan, would be for this generation to pay twice for the sewers constructed, — first, in an immediate general taxation, and afterwards in assessments on same; the latter being transmitted as a generously accumulated fund for the next generation to enjoy without any corresponding indebtedness to liquidate.

One objection of opponents to this course is, that, as certain sections of the city have once paid for their drains by local assessment, it would be unfair to require them now to share through general taxation the building of drains in other sections; but it must be borne in mind that sewers are not yet fully provided in any one ward of the city. The reclamation of the marsh lands and riparian bottoms will call for additional outlay, even where now it is felt the work is done. The new Ninth-street drain and Harvard-street prolongation being instances in point, with the still more costly continuation that will shortly have to be made on the line of Broad Canal out to deep water, if it be desired to avoid another nuisance quite as distinguishable as the Miller's River one.

And this leads me to say one word in reference to the vexed question of Miller's River drainage.

The Joint State Commission has reported to this Legislature, recommending that the river be dredged and filled with clean gravel, and that Cambridge and Somerville divert their drainage therefrom directly to Charles and Mystic rivers. The fulfilment of this recommendation — which has been procured so entirely through the earnest, persistent, and commanding efforts of our City Solicitor — will in great measure accomplish the abatement of a most dangerous nuisance to health, and further be attended with an increase of value to real property in the adjacent wards. Its estimated benefits cannot be too highly appreciated, so positive will be the correction.

WASHINGTON STREET DISTRICT.

A correlative subject to drainage is that of filling up the lower levels of the city to grade. By what is known as the "Grade Act" of 1869 and 1872, power is given the Board of Aldermen, for the purpose of preserving the public health, to order the raising of all lands within the corporate limits to an established grade. The grade decided upon is that of thirteen feet above mean low water, and accordingly the order has already issued for the filling of what are known as the Washington Street, the Webster Avenue, the Franklin Street, and the Cowperthwait Street districts.

The work on the Washington Street district is being actively pursued, and in the course of a year will reach completion. The time extended to the owners in the neighborhood of Webster Avenue has elapsed, and it now

devolves upon the City to enter, as in the first named case, and proceed to raise such lands as have not been done. This as a whole is recognized as being an extended work of public improvement; but, great as the improvement shall be, injustice must not be permitted.

There are ordinarily resident in these localities owners of estates of more moderate means, who, in their utter inability to meet immediately the extraordinary pecuniary demand that attaches, view with alarm and hopelessness the approaching day for settlement. Their cause cannot be too eloquently pleaded. Through the frugal savings of years they have but just come to be possessed of a home, to find themselves in danger of being banished from it. Widows are among the number; natural wards of the city, having claim to every considerate care. Better would it be to give outright the betterment, than suffer to befall any hardship so intense. However, there suggests a simple and satisfactory relief; in that the City may convert its acquired lien on the property into a mortgage having a limited number of years to run, with the further privilege of cancellation in optional annual instalments. The time might be nearly as extended as is the loan by which the expenditure is met, and thus the opportunity furnished the citizen to retain as of right his own.

Holders of present mortgages, already supplanted by the City in its lien, would be quite as well off as under forced sale, by releasing and accepting top-mortgages; and in all probability they would willingly and gladly concede.

In the full recognition that no community should ever

suffer even the appearance of oppression towards its weaker members to prevail, I earnestly ask your early and careful attention to this subject, so full of painful interest to the many anxious people affected by it.

STREETS.

There has been expended during the year by the Street Department, for streets and paving, $153,242.35 ; for widening streets, $21,594.82 ; and been paid into the Treasury, through incidental receipts, the sum of $1,146.27.

Thirty-three orders for sidewalks have passed the City Council, of which number thirty-two have been completed at an expense of $55,824.28. Seventy-nine streets have been graded in full or part, and seventeen streets laid out, established, widened, or extended ; 43,110 yards of paving laid, and edgestones set to the extent of 31,024 feet. A schedule of property shows a present value of $13,400.00 ; and the established force consists of thirty-eight men and twenty-one horses.

The Superintendent of Streets recommends that River Street, which is now fifty feet in width, be widened on the north-west side to sixty feet, to correspond to the Brighton terminus, and a brick sidewalk laid. If such were done, it is believed that the town of Brighton would co-operate in the matter of the contingent widening of the intervening bridge. The entire project would probably cost us $30,000. He also calls attention to the necessity that exists for paving Main Street from the "Lower Port" to Prospect Street with square block paving, and advises it

to be done as a matter of economy. This work, the estimated cost of which is about $100,000, would last with repairing forty years; to grade the same up fairly with Macadam would cost $25,000, and then last no more than two years. The lines of Brighton Street he represents as requiring radical changes to make the street really safe and convenient. And, further, he asks that some action be taken, in accordance with the report of a committee of the City Council, looking to the furnishing material for grading streets; as well as that additional facilities be supplied for breaking stone, by the purchase of a new engine and stone-crusher, the single machine in use being insufficient.

The streets are reported to be in good condition, comparing favorably with any in the State.

The great number of miles of roads that we have in the city, with the increasing and heavy travel, calls for a large annual expenditure in their maintenance. On our main thoroughfares, grading with gravel has become little better than useless, whilst cracked stone proves but a limited durability; the necessity, therefore, is being absolutely pressed upon us that we pave with granite. An order just passed by our predecessors provides for the paving of parts of Bridge and Cambridge Streets to the Junction Railroad, at a cost of $67,000. This we have to include in the appropriations for the present year; and it may become a question with us whether, in this view, it be well to undertake immediately so extended a work as proposed on Main Street; or rather by making temporary

expedient, postpone its consideration to a not very distant date.

Whilst valuing highly the recommendations of our experienced and capable Superintendent of Streets, I cannot refrain from expressing an individual opinion in respect to the subject of widening streets. The conviction is forced that fifty feet is wide enough for all ordinary purposes of street travel removed from the extraordinary demands of a commercial mart, and that we should at once give ourselves check in this direction; for, however desirable the possession of boulevards may be, their creation is expensive. And in this connection I am constrained to remark that, as widenings have been urged in consequence of the occupation of streets by horse-railroad tracks, great care should be exercised in the future to confine the franchise granted to those streets only where the width is sufficient to admit the easy laying of two tracks with full wagon-room on either side; or if narrow streets have to be entered upon by reason of extreme desirability of route, then the larger part of the cost of attendant widening should be required to be borne by the grantees.

BRIDGES.

The bridges are divided in their care. The control of West Boston and Craigie Bridges rests in the hands of Commissioners appointed by both the Cities of Cambridge and Boston, while the remainder continue under the charge of the Superintendent of Streets, and examination of the City Engineer.

The Cambridge Commissioner reports the amount expended on the two first-named bridges during the year to be $14,822.25; and the total cost of repairs specially made upon West Boston Bridge, $51,975.09.

He reminds of the law compelling draw-openings to be 36 feet in width; and states the intention of altering Craigie Bridge in conformity, this coming spring, by widening the draw and shifting it to channel; and further widening the bridge itself to 64 feet, so as to give sidewalks 10 feet in width, and roadway 44 feet. This will close the bridge to team travel from three to four months, and cost, on estimate, $160,000. When done, the next undertaking will be the placing a new draw of larger span upon West Boston Bridge, that the same statute requirement may be satisfied, — until which time, however, the Commissioners intend to provide the proper machinery for the application of steam-power to the present draw as a matter of economy and efficiency.

The City Engineer reports, on his part, that he has examined, as required, the bridges devolving on him; and has found them generally in good order, with the exception of Prison Point and Court Street Bridges, both of which need extensive repairs; and as it may be required by the Harbor Commission that a new draw be placed this year upon Prison Point Bridge, he advises in such case that the bridge be rebuilt entire. For a more detailed statement of this burdensome subject, I would refer you to the reports of the Commissioner, City Engineer, and Superintendent of Streets.

LAMPS.

It has cost the past year to light the streets, $14,146.69. The present system of locating street lamps is made to depend upon citizens contributing the lamp-post, and the City afterwards keeping it lit. This has so operated that whole lengths of travelled streets are now found at night in darkness, by reason of non-petition on the part of abutters. There is only one way that presents for supplying this need, and that is for the City to provide lamps at public cost for the public good. The expense in the aggregate could not be large, whilst the citizens generally would enjoy more than a corresponding benefit in the additional convenience and safety ensured.

The question of keeping the lamps lighted all night will come up for our action.

ALMSHOUSE.

There has been expended on account of the Almshouse the past year the sum of $42,610.26; and been derived from the sale of products and other sources $25,946.01; leaving a balance, as actual expense for the year, of $16,-664.25, incurred not only in the support of the inmates of the house, but in the assistance rendered to the worthy poor resident throughout the city.

The Overseers of the Poor, referring to the subject of house-offal, state that, in consequence of the abolishment of the piggery, the present income from this source is not

equal to the attendant expense of collection, and suggest "that provision be made, whereby it shall be for the interest of householders to save their offal to be removed by the City." Under the circumstance it may prove advisable to transfer the responsibility of this service to the Board of Health, as a proper matter for their direction, providing in a special appropriation for its thorough and effectual accomplishment. The Overseers call the particular attention of the Board of Health to the large establishment used for a tannery and the boiling of dead animals, located in the neighborhood of the Almshouse, as pernicious to health. They also represent that the Small-pox Hospital maintained on the premises should be disconnected from the care of the House or dependence on its *cuisine*, as in no way belonging to it, and causing great danger through a contact that unavoidably occurs. The Board further ask the City Council to consider, —

"1. Whether it would not be desirable to petition the General Court for an alteration of the Charter, that the Board of Overseers may be elected for three years, two each year respectively, and thus secure a more permanent Board than is obtained by an annual election.

"2. Whether some mode of heating and lighting the house might not be devised more economical and better than the present method, which is by stoves and kerosene lamps; an addition to the stable is also needed.

"3. Whether such changes may not be made in the house as will secure a more thorough separation of criminals, the worthy poor, and children. At present there is no separation except that of the sexes."

In conclusion, the school is spoken of as being in excellent order under the charge of a faithful and successful teacher; and the careful management on the part of the Warden and Matron is alluded to, as having sustained the previous high character for general neatness and order.

The year's average of 86 inmates shows that the time has not yet arrived for the discontinuance of this Asylum.

CEMETERY.

The Commissioners of the Cemetery report the receipts for the year at $12,512.22, and expenses, $10,710.38, leaving a balance, in favor, of $1,801.84.

The Cemetery is fast becoming one of the most beautiful places of sepulture in our vicinity; and with the very rapid sale of lots, the time is evidently not distant when the grounds will have to be extended by purchase. In view of the growing limitations in space, the Commissioners advise the withdrawal from non-residents of the privilege of burial heretofore accorded on payment of fee, as an act of justice to our own citizens for whom the Cemetery was especially designed. The Superintendent receives that compliment in praise to which he is so justly entitled.

LEGISLATIVE HEARINGS.

Cambridge has before the Legislature the following petitions: —

1. For a new broad avenue into Boston.
2. That for purposes of navigation and health of the

people there be secured forever the present area of Charles River Basin or its equivalent; or such part of such area as shall be practicable.

3. For the annexation of portions of Belmont and Watertown.

Regarding the first, I have but to offer that, however convenient and desirable either one of the several proposed new avenues between this City and the South End of Boston may appear to be, we can hardly expect aid or co-operation from Boston in this her present severity of calamitous experience. And, were it otherwise, the question presents as a pertinent one, whether a city removed from town by scarce three decades, with all the absolute needs for sewers, sidewalks, and paved streets pressing the largest expenditure, will not better direct its energies by leaving speculation characterized by æsthetic extravagance to the determining exigencies of the future.

The second petition contemplates the final establishment of the Commissioners' water-line, and the building a sea-wall on it, with an embordering park. It has been advanced that the City do this work at general cost, in consideration of the surrender by riparian owners of flats extending without the line, they filling up to grade. If the locating by United States authority of a commissioner's line do not act as a vacation of riparian ownership, then the City of Boston and State of Massachusetts should be invited to share with us in the purchase of these outlying grounds as debtors to the general plan, and there the City's intervention should cease. For, however advantageous to health the enjoyed ability to carry sewers direct

to deepened water may be, it is beyond the purpose of municipal function to engage in any undertaking that properly belongs to the developing agency of individual enterprise.

In the third petition, the annexation of portions of Belmont and Watertown, there appears a matter of interest. That it is desirable this suburb be induced to annex itself to us is undeniable, particularly as we shall thus obtain entire police control of Fresh Pond; but that we, as a City Council, should hold forth expectations other than the general advantages resulting from admitted citizenship, in the way of introduced water and gas and other improvements naturally to follow, is injudicious, to say the least, on the one hand, and bears the appearance of anxious solicitation on the other. I refer to the expectation encouraged that Cambridge will directly build a driveway and sewer surrounding the Pond. The time very possibly, may come in the future when it will be necessary to construct an encircling drain to save the water from pollution, but no promise that we are immediately prepared to enter and spend half a million dollars on a driveway should be suffered to rest as an offered inducement to an union we otherwise cordially invite, and sincerely trust will be effected.

HEALTH.

In our capacity as Board of Health, we have a most responsible duty to perform. With one contagion in our midst, and a coming apprehension of another, we shall only fulfil our obligation by instituting the most immediate

and active measures of repression. Thorough vaccination and complete isolation are the weapons to be used in the one hand, and general cleanliness and abatement of all nuisance the strength of the other. Our action may be of the arbitrary, but urgency shall appear in defence; and as the lives and health of our fellow-citizens come into peril, we are not to remain inactive or unmindful of our trust.

Gentlemen: —

In conclusion, having thus epitomized the affairs of the city, I may be permitted to add in extension, that with the high prosperity of the nation and the growing interests of the State, its increasing trade and wealth, and our contiguousness to the metropolis, fast assuming the proportions of a great *entrepôt* of commerce, we are justified in expectations the most sanguine. Another year or two will see a new avenue of inland traffic opened through the Hoosac; and as the heightened products of the West arrive for distribution, new industries shall arise and increased population appear to demand room in tenement.

This will attach in its results to us. Then will occur the natural sequence of a sea-wall and the filling up to grade of the marshes, with the erection of manufactories and perhaps villas on the water front.

Increased resources and more densely settled territory will help to lighten the burden of accumulated debt, and permit the undertaking of much that at present has to be waived. In anticipation of this condition we are now to provide; particularly in the way of sewers, sidewalks, paved streets, and the assuring a never-failing water sup-

ply. Our city we know to be attractive with its University, schools, society, residences, and surroundings. We have but to guarantee its continued healthfulness, and invest it with the secure and the comfortable. Whatever we undertake should be devised in conservatism, and executed in economy, having for our constant maxim, every thing for that which is necessary, nothing for the simply desirable.

ISAAC BRADFORD.

CAMBRIDGE, January 6, 1873.

ANNUAL REPORT

OF

THE COMMITTEE ON FINANCE.

The Joint Standing Committee on Finance submits respectfully to the City Council its Annual Report for the year ending November 30, 1872.

The total amount appropriated by the City Council, and set forth in the Annual Supply Bill in the beginning of the year, to defray the supposed expenses of the government, was $1,320,895.00.

It was found necessary subsequently to appropriate the sum of $392,500, which sum the City Ordinance requires to be provided by the creation of a City Debt. Therefore —

Total Appropriations for 1872	$1,713,395.00
,, Expenditures under the Appropriations . .	1,284,314.34
Balance unexpended	$429,080.66

The total expenditures under the appropriations being about twenty-one thousand dollars more than last year.

RECEIPTS AND EXPENDITURES.

Balance on hand, Dec. 1, 1871	$108,865.70
Receipts at Treasury for the year	1,793,470.92
Total Receipts in cash	$1,902,336.62
Total Expenditures during the year	1,896,688.36
Balance, Cash in Treasury, Dec. 1, 1872 . . .	$5,648.26

It may be well to state here that the expenditures include the payment of $19,000 of Bonds of the City out of $20,000 of Bonds that have been represented, for a number of years past, through mistake, as being Bonds of the City outstanding and coming due July 1, 1882. It was found that these Bonds were due July 1, 1872, and $19,000 of them have been presented and paid, leaving $1,000 still outstanding.

The increased receipts from the Fresh Pond Water are this year about $14,000 over last year.

SINKING FUND OF THE WATER WORKS.

This Sinking Fund was, June 30, 1871	$89,383.12
Added during the year —	
By Sale of Water Pipe	1,953.80
Interest, Balance of Receipts, and Payments . .	2,629.32
,, on Bonds	4,472.60
Amount from Water Rates	27,865.21
Back Accounts that should have been added in 1865, and Interest on same	3,044.12
Total Sinking Fund, June 30, 1872	$129,348.17

This Fund is invested as follows : —

Cambridge Water Loan Bonds	$93,823.00
Notes of the City on demand	35,525.17
Total	$129,348.17

The above statement shows an increase of this Sinking Fund by $39,965.05 ; but it is proper to deduct the $3,044.12 from that amount, to show the increase strictly belonging to this year, making it $36,920.93.

The increase is gratifying, as being larger than that of any previous year, and your Committee is glad to be able to say the prospects are of a still larger increase next year.

SINKING FUNDS OTHER THAN SINKING FUND OF THE WATER WORKS.

As this is the first appearance of this item in the City Documents, it will not be out of place, perhaps, to explain a little before making any figures.

On the 20th of March, 1872, an Ordinance was adopted by the City Council, relating to Sinking Funds for the redemption of certain debts and loans.

For the liquidation of the City Debt, other than the Water Loan, it was ordained that there should annually be appropriated and raised by taxation the sum of ten thousand dollars.

This Ordinance also makes it obligatory that all loans for public buildings, and lands therefor, for constructing and improving bridges, and for taking, raising, and improving low lands, shall be made for ten years, and a sum equal to six per cent. of such loan shall be annually appropriated and raised by taxation.

All loans made for laying out and paving streets and purchasing public lands shall be made for twenty years, and a sum equal to three per cent. of such loan shall be annually appropriated and raised by taxation.

All loans for widening streets and constructing sewers and drains shall be made for thirty years, and a sum equal to one and one-half per cent. of such loan shall annually be appropriated and raised by taxation.

These several sums, to be raised by taxation, together with all sums received for entering, and as assessments for sewers and drains; from the sale of real estate belonging to the city; for assessments for benefit or advantage by reason of laying out, widening, discontinuing, changing of grade, or other alteration of streets or bridges; and from any bond or note, other than Water Loan, belonging to the City, shall annually, on the 30th day of November, be paid by the City Treasurer to the Board of Commissioners on said Sinking Funds.

Therefore these Sinking Funds are, Dec. 1, 1872, —

Amount on Old Debt	$10,000.00
,, ,, Loan negotiated on ten years	900.00
,, ,, Sewer Assessments	29,023.01
,, ,, Betterments on Streets	187.50
Total, Dec. 1, 1872	$40,110.51

All of which is invested in a note of the City.

ANALYSIS OF THE CITY DEBT.

Amount of Debt, Dec. 1, 1871	$1,971,010.18
Added during the year —	
State and County Taxes	92,548.74
Bonds and Notes of City	329,635.68
Bills approved and Interest due not paid	1,259.27
Total	$2,394,453.87
Deduct City Debt paid in 1872	208,610.18
Total City Debt Dec. 1, 1872	$2,185,843.69
Deduct City Debt Dec. 1, 1871	1,971,010.18
Increase of Debt during the year	$214,833.51

The classification of the entire City indebtedness is as follows: —

Daniel White Charity	$5,000.00
Dowse Institute Fund	10,000.00
Sanders Temperance Fund	10,000.00
Cambridge Water Loan Bonds outstanding	844,577.00
,, ,, ,, ,, in hands of Trustees of Sinking Fund of Water Works	93,823.00
Cambridge City Bonds outstanding	722,000.00
Notes of City outstanding	331,000.00
,, ,, ,, in hands of Commissioners of Sinking Funds	40,110.51
Notes of City in hands of Trustees of Sinking Fund of Water Works	35,525.17
State Tax	58,580.00
County Tax	33,968.74
Bills approved and Interest due, not paid	1,259.27
Total	$2,185,843.69

In the foregoing analysis it has been the object of your Committee to set forth by a plain statement the true indebtedness of the City, and of what it is composed. We have therefore omitted nothing that the City may, under any contingency, be called upon to pay. It has been the custom for some years past in making up the Finance Report to omit the Dowse Institute Fund and the Sanders Temperance Fund; because the City is not to be called upon to pay the notes given for these funds so long as the City annually appropriates the interest on said sums at the rate of six per cent., and applies said interest to the proper purposes. We consider this incorrect, as giving the impression that the City may do as it pleases with these funds, whereas, should the City not comply with the requirements, the notes are payable on demand. This analysis will also be found to differ from those of years past in the manner of obtaining the total indebtedness, from the fact that, to find the total, it has been the custom to deduct the Sinking Fund of the Water Works. We would ask, if this is no debt of the City, being invested in the Bonds for which the City is holden, and notes of the City payable on demand, why the Bonds and Notes of the City so holden are not cancelled? and why we are to pay interest on these Bonds and Notes, or any part of them?

There is due the City this year from the State —

Under Corporation Tax Act	$27,563.29
On account of State Paupers	98.86
For Aid to Volunteers and Families . .	20,000.00
Total	$47,662.15

UNCOLLECTED TAXES AND OTHER ASSESSMENTS.

The Taxes assessed for 1872 were —

For City purposes	$592,165.46	
State Tax	58,580.00	
County Tax	33,968.74	
		$684,714.20

Amount brought forward		$684,714.20
Of the above tax the amount collected is	$575,365.68	
Discounted	23,225.47	
Abated	13,538.62	
		612,127.77
Balance uncollected		$72,586.43
Of the tax of 1871 there remained uncollected, Dec. 1, 1871		$70,361.59
Of that amount there has been collected	$39,138.89	
Abated	1,957.51	
		41,096.40
Balance uncollected		$29,265.19
Of the tax of 1870 there remained uncollected, Dec. 1, 1871		$10,719.71
Of that amount there has been collected	$2,714.88	
Abated	127.60	
		2,842.48
Balance uncollected		$7,877.23
Of the tax of 1869 there remained uncollected, Dec. 1, 1871		$4,138.29
Of that amount there has been collected . . .		249.00
Balance uncollected		$3,889.29
Of the tax of 1868 there remained uncollected, Dec. 1, 1871		$3,363.54
Of that amount there has been collected		355.90
Balance uncollected		$3,007.64

Of the taxes of the years previous to 1868 there remained uncollected, Dec. 1, 1871 . . .		$7,342.79
All of which remains uncollected.		
The taxes on Stock in Cambridge Banks, for the year 1872, owned by non-residents, were . . .	$1,390.49	
Of the taxes on Stock in Cambridge Banks for the year 1871 there remained uncollected, Dec. 1, 1870	263.36	
		$1,653.85
Of that amount there has been collected	$1,298.65	
Abated	109.50	
		1,408.15
Balance uncollected		$245.70
The amount of Drain Assessments committed to the Treasurer in 1872 is		$10,869.17
Of that amount there has been collected	$2,195.51	
Abated	158.21	
		2,353.72
Balance uncollected		$8,515.45
The amount of former Drain Assessments uncollected, Dec. 1, 1871, was		$73,698.24
Of that amount there has been collected	$27,068.93	
Abated	7,467.16	
		34,536.09
Balance uncollected		$39,162.15

The amount of Assessments for Betterments by reason of widening Streets committed to the Treasurer in the year 1872 was		$24,297.48
Of that amount there has been collected . . .		187.50
Balance uncollected		$24,109.98
The amount of Assessments for abatement of Nuisances committed to the Treasurer in 1872 was		$987.00
Of that amount there has been collected		622.00
Balance uncollected		$365.00
The amount of Assessments to defray the expense in part of constructing Sidewalks in 1872 is .	$43,773.82	
Amount of Assessments uncollected, Dec. 1, 1871, is	1,432.49	
		$45,206.31
Of that amount there has been collected	$38,376.42	
Abated	161.31	
		38,537.73
Balance uncollected		$6,668.58

POLLS AND VALUATIONS OF ESTATES.

The following table shows the valuation of Personal Estate, Real Estate, Polls, and Dwellings in the city, as taken from the Assessors' books of May last.

Ward.	No. of Polls.	Personal Estate.	Real Estate.	Total.	No. of Dwellings.
1	1,743	$6,109,900	$11,680,600	$17,790,500	1220
2	2,935	4,493,850	9,818,000	14,311,850	1904
3	2,701	2,241,100	6,322,400	8,563,500	1256
4	2,433	1,820,600	6,337,300	8,157,900	1606
5	1,055	1,368,000	5,056,600	6,424,600	642
Total .	10,867	$16,033,450	$39,214,900	$55,248,350	6628

The above table shows an increase for the year in

Personal Estate	$2,699,450
Real Estate	5,689,100
Number of Polls	544
,, ,, Dwellings	378

The rate of taxation was $12 per thousand, subject to a discount of four per cent., if paid before October 10, according to ordinance, making the net rate $11.52 per thousand.

We append the report of a sub-committee appointed to examine the books and accounts of the Treasurer, also the Treasurer's account in full, and the statements of the Auditor, showing in detail and in recapitulation the appropriations and expenditures.

Respectfully submitted,

H. O. HOUGHTON,
C. R. RANSOM,
ALVARO BLODGETT,
FRANCIS H. WHITMAN,
ISAAC C. HOLMES,
CHAS. R. PATCH,
S. J. BROOKS,

Committee on Finance.

DECEMBER 31, 1872.

REPORT

CONCERNING

THE ACCOUNTS OF THE TREASURER.

In Committee on Finance, *Dec.* 31, 1872.

Your Sub-Committee appointed to examine the accounts of the City Treasurer for the financial year ending Nov. 30, 1872, have attended to their duty, and respectfully

REPORT:

That we have, as we were empowered, employed Watson Gore, Esq., a person highly recommended, and one in whom, after trial of his ability, we have the greatest confidence as regards his ability to understandingly and thoroughly examine the books and vouchers of the City, and compare the same; and your Sub-Committee, as they have many times, while the examination was going on, been with Mr. Gore, with the view to see for themselves that the examination was being thoroughly made, are prepared to state that the examination has been carefully, and perhaps more thoroughly performed than ever before. Your Sub-Committee would also state that in their opinion it is the only wise course for the City to take in the matter of the examination of the City books, to allow the Finance Committee to employ, and, we might add, to compel them to employ, some first-class accountant to examine the City books annually.

It matters not what the ability of the Finance Committee may be, it is a matter of great importance that the work be thoroughly done; and it is a work that it would take the Committee longer to do than most of the Committee could afford or would be willing

to take from their business, and we also think a longer time than the City has any right to ask of the Committee.

Mr. Gore states to your Sub-Committee that he has examined the accounts of both the Treasurer and Auditor; and although he found in one instance a mistake in interest that was returned from a Bank miscalculated, this has been made correct, and that the books and accounts are at the present date, Dec. 1, 1872, correct, leaving in the hands of the Treasurer five thousand six hundred and forty-eight dollars and twenty-six cents ($5,648.26), also two thousand dollars of the Cambridge Water-loan Bonds more than his accounts show the City to be entitled to.

FRANCIS H. WHITMAN,
ISAAC C. HOLMES,
H. O. HOUGHTON,
} *Sub-Committee.*

SCHEDULE OF EXPENDITURES

FOR

THE FINANCIAL YEAR ENDING NOVEMBER 30, 1872.

For Instruction in Public Schools.

Salary of Superintendent		$3,000.00	
Salaries of Teachers		130,497.76	
			$133,497.76
Appropriation . .	$130,000.00		
Additional Appropriation	3,566,28		
		$133,566.28	
Amount of Expenses		133,497.76	
Balance unexpended		$68.52	

For Scientific Department of High School.

Chemicals, &c.			$33.72
Appropriation		$100.00	
Amount of Expenses .	$33.72		
Transferred	66.28		
		$100.00	

For Text-Books for High School.

Appropriation . . .	$200.00	
Transferred	200.00	

For Evening Schools for Adults.

Instruction	$1,751.00	
Rent of hall, and fitting room . . .	1,438.13	
Other Expenses	193.66	
		$3,382.79

Appropriation . .	$3,000.00		
Additional Appropriation	382.79		
		$3,382.79	
Amount of Expenses		3,382.79	

For Hopkins Fund.

Appropriation		$800.00	
Transferred to "Instruction in Public Schools," towards salary of Classical Teacher in High School .		800.00	

For Compensation of Secretary of School Committee.

Secretary			$300.00
Appropriation		$300.00	
Amount of Expenses		300.00	

For Care and Repairs of School-Houses.

Rent of halls for school-rooms . . .		$127.50	
School furniture		2,106.11	
Fuel		9,320.33	
Care of houses, fires, &c.		7,236.31	
Mats, dusters, &c.		734.27	
Repairs and materials		7,090.37	
Furnaces and repairs		1,120.16	
Books and stationery		3,162.50	
Other Expenses		2,209.09	
			$33,106.64
Appropriation		$40,600.00	
Amount of Expenses	$33,106.64		
Transferred . . .	4,500.00		
		37,606.64	
Balance unexpended		$2,993.36	

For Police Station in Ward Two.

Building station-house		$2,363.68	
Other Expenses		100.43	
			$2,464.11
Appropriation		$2,500.00	
Amount of Expenses		2,464.11	
Balance unexpended		$35.89	

For New School-Houses and Alterations.

House on Broadway	$24,451.07	
House on Spruce Street	6,580.04	
House on Gore Street	15,911.93	
Alterations in Washington School-house	503.47	
Plans, specifications, and superintendence	2,724.38	
Fence on Broadway	1,300.00	
Paving	2,101.59	
Heating apparatus	4,628.39	
Furniture	6,358.85	
Other Expenses	826.02	
		$65,385.74
Appropriation	$70,000.00	
Amount of Expenses	65,385.74	
Balance unexpended	$4,614.26	

For Almshouse and Stone Ledge.

Salaries	$2,206.67	
Supplies for the house	6,182.63	
Dry goods and clothing	1,054.44	
Sundry laborers	10,852.61	
Fuel	1,416.10	
Hay, grain, and meal	1,155.66	
Tools, hardware, &c.	641.94	
Assistance to poor out of the house	9,664.89	
Support of persons in State institutions	4,880.54	
Expenses for small-pox patients	657.50	
Repairs	1,028.97	
Other Expenses	2,868.31	
		$42,610.26
Appropriation $42,000.00		
Additional Appropriation 700.00		
	$42,700.00	
Amount of Expenses	42,610.26	
Balance unexpended	$89.74	

For Police and Watch.

Chief of Police, salary		$2,000.00	
Services of Policemen		53,177.67	
Care of Police Court-room		100.00	
Gas and fuel		934.25	
Repairs		399.74	
Supplies		57.67	
Boarding horses and horse-hire		467.36	
Other Expenses		1,156.59	
			$58,293.28
Appropriation		$60,045.00	
Amount of Expenses	$58,293.28		
Transferred	700.00		
		58,993.28	
Balance unexpended		$1,051.72	

For Fire Department.

Chief Engineer, salary		$800.00	
Assistant Engineers, salaries		983.00	
Clerk of Engineers, salary		46.40	
Clerk of Committee, salary for 1871		100.00	
Services of members		20,298.55	
Fines of members		273.00	
Steamer and hose carriages		7,000.00	
Hay, grain, and meal		2,585.51	
Repairs and materials		1,509.83	
Harnesses and repairs		335.74	
Hose and repairs		2,253.38	
Fuel		366.69	
Extension, &c., of fire alarm (in part)		1,574.28	
Other Expenses		4,247.18	
			$42,373.56
Appropriation		$55,000.00	
Amount of Expenses	$42,373.56		
Transferred	8,000.00		
		50,373.56	
Balance unexpended		$4,626.44	

For Streets and Paving.

Superintendent of Streets, salary		$2,000.00
Amount paid for labor		53,651.07
Paving		59,628.85
Gravel, stone, and carting		25,164.11
Street-sprinkler		507.00
Horses		2,425.00
Horse-shoeing and iron-work		1,883.57
Hay, grain, and meal		4,082.64
Damages for widening		743.00
Other Expenses		3,157.11
		$153,242.35
Appropriation	$150,000.00	
Additional Appropriation	3,300.00	
	$153,300.00	
Amount of Expenses	153,242.35	
Balance unexpended	$57.65	

For Sewers and Drains.

Building and repairing sewers and cess-pools		$55,763.36
Amount paid for labor		2,924.86
Brick, stone, and drain-pipe		10,593.65
Lumber, cement, and lime		2,474.88
Other Expenses		599.52
		$72,356.27
Appropriation	$70,000.00	
Additional Appropriation	30,000.00	
	$100,000.00	
Amount of Expenses	72,356.27	
Balance unexpended	$27,643.73	

For Care and Repairs of Bridges.

Care of draws		$764.75
Sundry workmen		2,305.40
Repairs and iron-work		92.68
Lumber		1,476.81
Other Expenses		76.01
		$4,715.65

Appropriation	$10,000.00	
Amount of Expenses . $4,715.65		
Transferred 3,300.00		
	8,015.65	
Balance unexpended	$1,984.35	

For Care and Maintenance of West Boston and Craigie's Bridges.

Commissioner, salary	$500.00	
Repairs and materials	11,724.05	
Gas-pipe and fixtures	862.24	
Labor	1,660.59	
Other Expenses	75.37	
		$14,822.25
Appropriation	$20,000.00	
Amount of Expenses	14,822.25	
Balance unexpended	$5,177.75	

For Lighting Streets.

Superintendent of Lamps, salary . .	$400.00	
Gas	8,397.31	
Fluid, matches, &c.	505.25	
Care of lamps and lighting	3,186.10	
Posts, lanterns, and repairs	1,592.26	
Other Expenses	65.77	
		$14,146.69
Appropriation	$17,000.00	
Amount of Expenses $14,146.69		
Transferred . . . 2,700.00		
	16,846.69	
Balance unexpended	$153.31	

For Watering Streets.

Paid for watering	$8,781.75	
Other Expenses	111.88	
		$8,893.63

Appropriation . . .	$3,500.00	
Additional Appropriation	5,404.00	
		$8,904.00
Amount of Expenses		8,893.63
Balance unexpended		$10.37

For Salaries of City Officers.

Mayor		$2,500.00
Treasurer		3,000.00
City Clerk		2,000.00
Auditor of Accounts		500.00
City Solicitor		850.00
City Engineer (six months)		1,500.00
Clerk of Committees		900.00
Clerk of Common Council		300.00
Board of Assessors		3,600.00
Inspector of Milk		200.00
Sealer of Weights and Measures . .		500.00
Messenger		1,500.00
		$17,350.00
Appropriation . .	$15,900.00	
Additional Appropriation	1,500.00	
	$17,400.00	
Amount of Expenses	17,350.00	
Balance unexpended	$50.00	

For Cemeteries.

Superintendent, salary		$1,200.00
Sundry workmen		8,029.33
Other Expenses		1,481.05
		$10,710.38
Appropriation . .	$9,000.00	
Additional Appropriation	1,800.00	
	$10,800.00	
Amount of Expenses	10,710.38	
Balance unexpended	$89.62	

For Public Squares.

City Forester, services	$390.00	
Labor	890.33	
Building and repairing fences, &c.	754.36	
Drinking-fountains and repairs	198.18	
Trees	93.90	
Other Expenses	104.22	
		$2,430.99
Appropriation	$4,000.00	
Amount of Expenses	2,430.99	
Balance unexpended	$1,569.01	

For Interest and Bank Discounts.

Cambridge City Bonds	$85,484.00	
Cambridge City Bonds (gold)	7,500.00	
Cambridge City Notes	11,789.48	
Lowell Institution for Savings	1,725.00	
Trustees of Sanders Temperance Fund	600.00	
Trustees of Dowse Institute	600.00	
Trustees of Daniel White Charity	300.00	
Premium for gold	862.49	
Mortgage on land on Western Avenue	168.00	
Sundry banks, &c., on temporary loans	19,345.90	
		$128,374.87
Appropriation	$130,000.00	
Amount of Expenses	128,374.87	
Balance unexpended	$1,625.13	

For Dana Library.

Librarian, salary	$375.00	
Assistant-Librarian, salary	108.33	
Rent and care of rooms	685.25	
Fitting room and bookcase	533.85	
Books and stationery	1,446.13	
Other Expenses	244.61	
		$3,393.17

Appropriation	$3,500.00	
Amount of Expenses	3,393.17	
Balance unexpended	$106.83	

For Volunteers and their Families.

Amount paid to soldiers' families		$21,000.00
Appropriation . . $21,000.00		
Additional Appropriation 200.00		
	$21,200.00	
Amount of Expenses	21,000.00	
Balance unexpended	$200.00	

For Widening Streets.

Damages for widening		$22,903.57
Appropriation	$50,000.00	
Amount of Expenses $22,903.57		
Transferred . . . 2,704.00		
	25,607.57	
Balance unexpended	$24,392.43	

For City Engineering.

City Engineer, salary (six months) . .	$1,500.00	
Assistants	2,757.05	
Maps and stationery	756.47	
Other Expenses	459.29	
		$5,472.81
Appropriation	$7,000.00	
Amount of Expenses . $5,472.81		
Transferred 1,500.00		
	6,972.81	
Balance unexpended	$27.19	

For Soldiers' Monument.

Altering tablets		$398.87
Appropriation	$450.00	
Amount of Expenses	398.87	
Balance unexpended	$51.13	

For Care and Repairs of Water Works.

Superintendent, salary		$2,250.00
Water Registrar, salary		1,900.00
Clerk of Water Board, salary		175.00
Assistance in office		1,780.04
Office and shop rent		600.00
Sundry workmen		7,214.66
Repairs and iron-work		1,363.00
Lumber, cement, and packing		342.16
Fuel and freight		5,824.20
Other Expenses		3,064.08
		$24,513.14
Appropriation	$20,000.00	
Additional Appropriation	5,000.00	
		$25,000.00
Amount of Expenses		24,513.14
Balance unexpended		$486.86

For Supply Account of Water Works.

Sundry workmen		$6,428.32
Supplies		9,295.90
Other Expenses		705.27
		$16,429.49
Appropriation	$15,000.00	
Additional Appropriation	2,500.00	
		$17,500.00
Amount of Expenses		16,429.49
Balance unexpended		$1,070.51

For Extension of Water Works.

Sundry workmen	$11,071.34
Pipes, freight, and wharfage	41,144.99
Pumps	10,063.08
Water-gates and valves	7,967.25
Water-meters	1,201.25
Amount carried forward	$71,447.91

Amount brought forward . . .		$71,447.91	
Foundation of well-room		2,500.00	
Hydrants and iron-work		3,290.31	
Lead		2,126.11	
Packing		224.28	
Lumber, cement, &c.		975.42	
Other Expenses		4,674.38	
			$85,238.41
Appropriation . .	$150,000.00		
Additional Appropriation	100,000.00		
		$250,000.00	
Amount of Expenses	$85,238.41		
Transferred . . .	7,500.00		
		92,738.41	
Balance unexpended		$157,261.59	

For Sinking Fund of Water Works.

Amount paid Trustees of Fund			$30,769.91
Appropriation . . .	$20,000.00		
Additional Appropriation	10,769.91		
		$30,769.91	
Amount of Expenses		30,769.91	

For Incidental Expenses.

Legal services and expenses . . .	$1,735.76
Settlement of claims	3,700.00
Somerville tax-bill	593.45
Belmont tax-bill	95.00
Printing and advertising	5,939.66
Books and stationery	1,914.23
Revenue stamps and postage	344.27
Abstract for Assessors	247.94
Recording births, deaths, and marriages .	555.75
City Clerk, for clerical assistance . .	1,000.00
Page of Common Council	50.00
Assistant Assessors, services	646.00
Amount carried forward . . .	$16,822.06

Amount brought forward . . .	$16,822.06	
Services of Ward Officers	490.00	
Rent and care of ward-rooms	73.21	
Rent of armory	395.00	
Company C., Fifth Regiment, services . .	565.00	
Expenses of Decoration Day	600.00	
Premium of insurance	355.70	
Repairs at City Hall	1,127.11	
Expenses at City Hall	3,522.14	
Horse-hire and car-fares	508.00	
Dam at Sidney Street	600.00	
Water for fire hydrants	10,770.00	
Water for drinking-fountains	885.00	
City Supper	386.40	
Other Expenses	9,179.44	
		$46,279.06
Appropriation	$50,000.00	
Amount of Expenses $46,279.06		
Transferred . . . 3,152.70		
	49,431.76	
Balance unexpended	$568.24	

For Payment of City Debt.

City Notes	$100,000.00	
City Bonds	19,000.00	
		$119,000.00
Appropriation . . $100,000.00		
Additional Appropriation 20,000.00		
	$120,000.00	
Amount of Expenses	119,000.00	
Balance unexpended	$1,000.00	

For Washington Street Improvement.

Examination of titles	$2,500.00	
Land damages	42,615.54	
Engineering expenses	431.12	
Building sewer	6,000.00	
Other Expenses	432.62	
		$51,979.28

Appropriation	$200,000.00
Amount of Expenses	51,979.28
Balance unexpended . . .	$148,020.72

For Purchase of Land on Western Avenue.

Paid for land		$8,335.18
Appropriation	$12,500.00	
Amount of Expenses	8,335.18	
Balance unexpended	$4,164.82	

For Sewer at Fresh Pond.

Appropriation	$30,000.00
Balance unexpended	30,000.00

For Sinking Fund.

Amount paid Commissioners of Fund		$40,110.51
Appropriation	$50,000.00	
Amount of Expenses	40,110.51	
Balance unexpended	$9,889.49	

RECAPITULATION OF EXPENDITURES FOR THE FINANCIAL YEAR ENDING NOV. 30, 1872.

	Original Appropriations.	Added subsequently.	Subtracted subsequently.	Appropriations as altered.	Amount of Expenditures.	Balances Unexpended.
Instruction in Public Schools	$130,000.00	$3,566.28		$133,566.28	$133,497.76	$68.52
Scientific Department of High School	100.00		$66.28	33.72	33.72	
Text-Books for High School	200.00		200.00			
Evening Schools for Adults	3,000.00	382.79		3,382.79	3,382.79	
Hopkins Fund	800.00		800.00			
Compensation of Secretary of School Committee	300.00			300.00	300.00	
Care and Repairs of School-houses	40,600.00		4,500.00	36,100.00	33,106.64	2,993.36
Police Station, Ward Two	2,500.00			2,500.00	2,464.11	35.89
New School-houses and Alterations	70,000.00			70,000.00	65,385.74	4,614.26
Almshouse and Stone Ledge	42,000.00	700.00		42,700.00	42,610.26	89.74
Police and Watch	60,045.00		700.00	59,345.00	58,293.28	1,051.72
Fire Department	55,000.00		8,000.00	47,000.00	42,373.56	4,626.44
Streets and Paving	150,000.00	3,300.00		153,300.00	153,242.35	57.65
Widening Streets	50,000.00		2,704.00	47,296.00	22,903.57	24,392.43
Sewers and Drains	70,000.00	30,000.00		100,000.00	72,356.27	27,643.73
Care and Repairs of Bridges	10,000.00		3,300.00	6,700.00	4,715.65	1,984.35
Care and Maintenance of West Boston and Craigie's Bridges	20,000.00			20,000.00	14,822.25	5,177.75
Lighting Streets	17,000.00		2,700.00	14,300.00	14,146.69	153.31
Watering Streets	3,500.00	5,404.00		8,904.00	8,893.63	10.37
Salaries of City Officers	15,900.00	1,500.00		17,400.00	17,350.00	50.00
Cemeteries	9,000.00	1,800.00		10,800.00	10,710.38	89.62
Public Squares	4,000.00			4,000.00	2,430.99	1,569.01
City Engineering	7,000.00		1,500.00	5,500.00	5,472.81	27.19
Interest and Bank Discounts	130,000.00			130,000.00	128,374.87	1,625.13
Dana Library	3,500.00			3,500.00	3,393.17	106.83
Volunteers and their Families	21,000.00	200.00		21,200.00	21,000.00	200.00
Soldiers' Monument	450.00			450.00	398.87	51.13
Care and Repairs of Water Works	20,000.00	5,000.00		25,000.00	24,513.14	486.86
Supply Account of Water Works	15,000.00	2,500.00		17,500.00	16,429.49	1,070.51
Extension of Water Works	150,000.00	92,500.00		242,500.00	85,238.41	157,261.59
Sinking Fund of Water Works	20,000.00	10,769.91		30,769.91	30,769.91	
Incidental Expenses	50,000.00		3,152.70	46,847.30	46,279.06	568.24
Payment of City Debt	100,000.00	20,000.00		120,000.00	119,000.00	1,000.00
Sinking Fund	50,000.00			50,000.00	40,110.51	9,889.49
Washington Street Improvement		200,000.00		200,000 00	51,979.28	148,020.72
Purchase of Land, Western Avenue		12,500.00		12,500.00	8,335.18	4,164.82
Sewer at Fresh Pond		30,000.00		30,000.00		30,000.00
Amount of Appropriations	$1,320,895.00			$1,713,395.00	$1,284,314.34	$429,080.66
Amount of Expenditures				1,284,314.34		
Balances unexpended				$429,080.66		

The appropriation for Hopkins Fund was transferred to Instruction in Public Schools. The creation of a City Debt of $392,500.00 was authorized for certain appropriations subsequent to the annual appropriations, namely, Sewers and Drains, $30,000; Extension of Water Works, $100,000, of which $7,500 were transferred; Payment of City Debt, $20,000; Washington Street Improvement, $200,000; Purchase of Land on Western Avenue, $12,500; Sewer at Fresh Pond, $30,000. None of these loans were negotiated, with the exception of $15,000 of the Washington Street Improvement.

Dr. JOSEPH WHITNEY, TREASURER,

1871.		
Dec. 1.	Balance on hand	$108,865.70
	Of sundry persons, old Metal and Hose sold, and for pumping	433.35
	Overcharge on Bill, refunded	13.70
	Sawyer & Hannum, Lot on Sidney Street	2,895.80
	J. C. Chase, Rent of Land	50.00
	H. O. Houghton, Old Desks and Chairs	12.00
	State of Massachusetts, School Fund	1,717.76
	County of Middlesex, Dog Taxes refunded	2,198.74
	North American Insurance Co., Return Premium	561.98
	State of Massachusetts, Corporation Tax	2,151.04
	,, ,, Armory Rent	50.00
	North National Bank, Interest	136.99
	Abraham Moses, Peddler's License	25.00
	Sundry persons, Shade Trees	87.00
	Damage to Street Lamp	1.00
	Edward Abbott, Tuition	50.00
	Rent of Buildings, W. B. & C. Bridges, Repairs of Draw, and damage to Bridge	122.25
	Cambridge Water Works, Rent of Office and Shop	600.00
	Trustees of Hopkins Charity Fund	838 00
	J. S. Sawyer, Rent of Lot, Sidney Street	14.05
	Emeline N. Atwill, Balance in exchange of Land	276.00
	Sundry persons, Rent of Chater Estate	175.00
	Hay from Cambridge Common, sold	24.00
	J. Chater, one month's Interest overpaid and refunded	21.48
	Proceeds of sale of Barn, City Wharf	70.00
	Sundry persons, Watering Streets	4,206.50
	J. A. Jacobs, Licenses, Employment Office	1.00
	,, ,, ,, Auctioneers	20.00
	,, ,, ,, Circus	30.00
	County of Middlesex, Rent of Police Court Room	350.00
	J. K. Farwell, Supt., Account of Cemetery	12,512.22
	Sundry persons, Weighing Fees	337.45
	,, ,, Paving Assessments	38,376.42
	Russell Marston, Street Betterment	187.50
	A. F. Fifield, Registrar, Account Cambridge Water Works	141,751.69
	Sundry persons, Drain Assessments	29,264.44
	George L. Cade, Supt., Account Streets and Paving	1,146.27
	State of Massachusetts, Account State Aid	20,000.00
	,, ,, ,, Bank Taxes	12,043.48
	,, ,, ,, Corporation Taxes	28,276.29
	,, ,, ,, Militia Bounty	603.00
	Thomas McIntire, Clerk, Account Police Court	4,059.42
	Sundry persons, Nuisance Assessments	622.00
	C. F. Orne, Librarian, Account Dana Library	333.90
	Interest on Bonds sold	94.68
	Sundry persons and institutions, Municipal Loan	310,635.68
	,, ,, Low Land Loan	15,000.00
	J. W. Averill, Warden, Account Almshouse	17,579.62
	Sundry persons and institutions, Temporary Loan	523,025.17
	Taxes of 1868	355.90
	,, ,, 1869	249.00
	,, ,, 1870	2,714.88
	,, ,, 1871	39,138.89
	,, ,, 1872	575,363.68
	Bank Taxes	1,298.65
	Interest on Taxes	1,368.05
		$1,902,336.62

CAMBRIDGE, Nov. 30, 1872.

IN ACCOUNT WITH THE CITY OF CAMBRIDGE. Cr.

1871.	Paid Charles Adams, Jr., Treasurer, State Tax	$63,025.00
Dec. 1.	,, Amos Stone, Treasurer, County Tax	25,657.40
	Sundry persons, per Mayor's Drafts and Orders	1,036,559.42
	,, ,, Interest on Temporary Loan	19,345.90
	,, ,, ,, ,, Permanent Loan	110,075.47
	,, ,, Temporary Loans	523,025.17
	,, ,, City Debt	119,000.00
	Balance on hand	5,648.26
		$1,902,336.62

JOSEPH WHITNEY, *Treasurer.*

ACCOUNT OF CITY DEBT, DECEMBER 1, 1872.

Date.	Rate.	To whom payable.	When payable.	Interest paid to.	Amount.	Total.
April 6, 1857.	5¾	Lowell Institution for Savings	April 6, 1877.	Oct. 6, 1872.	$30,000.00	
July 1, 1858.	5	Cambridge City Bonds	July 1, 1878.	July 1, 1872.	7,000.00	
July 1, 1859.	5	,, ,, ,, ...	July 1, 1879.	July 1, 1872.	15,000.00	
July 1, 1862.	5	,, ,, ,, ...	July 1, 1872.	July 1, 1872.	1,000.00	
Aug. 1, 1862.	5	,, ,, ,, ...	Aug. 1, 1882.	Aug. 1, 1872.	30,000.00	
Sept. 10, 1862.	5	,, ,, ,, ...	Sept. 10, 1882.	Sept. 10, 1872.	40,000.00	
Sept. 10, 1862.	5	,, ,, ,, ...	Sept. 10, 1877.	Sept. 10, 1872.	30,000.00	
Nov. 20, 1862.	5	,, ,, ,, ...	Nov. 20, 1882.	Nov. 20, 1872.	14,000.00	
March 5, 1863.	5	,, ,, ,, (Gold)	Jan. 1, 1893.	July 1, 1872.	150,000.00	
April 1, 1864.	5	,, ,, ,, ...	April 1, 1889.	Oct. 1, 1872.	100,000.00	
July 1, 1870.	6	,, ,, ,, ...	July 1, 1890.	July 1, 1872.	20,000.00	
June 2, 1871.	. .	Cambridge City Note	June 2, 1874.	June 2, 1872.	10,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	10,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	10,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	10,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	10,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	7,000.00	
June 2, 1871.	. .	,, ,, ,, ...	June 2, 1874.	June 2, 1872.	5,000.00	
July 1, 1871.	. .	Cambridge City Bonds	July 1, 1876.	July 1, 1872.	100,000.00	
July 1, 1871.	. .	,, ,, ,, ...	July 1, 1881.	July 1, 1872.	100,000.00	
July 1, 1871.	. .	,, ,, ,, ...	July 1, 1886.	July 1, 1872.	100,000.00	
July 1, 1872.	. .	,, ,, ,, ...	July 1, 1882.	. . . . .	15,000.00	
Nov. 1, 1870.	8	Mary Waller	Nov. 1, 1875.	Nov. 1, 1872.	3,200.00	
May 1, 1872.	10	,, ,, ...	May 1, 1875.	Nov. 1, 1872.	800.00	
Oct. 10, 1872.	7	Cambridge City Note	Oct. 10, 1873.	. . . . .	100,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	

Oct. 10, 1872.	7	Cambridge City Note	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 10, 1872.	7	,, ,, ,, ...	Jan. 10, 1873.	. . . . .	5,000.00	
Oct. 31, 1872.	7	,, ,, ,, ...	March 3, 1873.	March 3, 1873.	5,000.00	
Oct. 31, 1872.	7	,, ,, ,, ...	March 3, 1873.	March 3, 1873.	5,000.00	
Oct. 31, 1872.	7	,, ,, ,, ...	March 3, 1873.	March 3, 1873.	5,000.00	
Nov. 2, 1872.	7	,, ,, ,, ...	March 5, 1873.	March 5, 1873.	25,000.00	
Nov. 11, 1872.	7	,, ,, ,, ...	May 14, 1873.	May 14, 1873.	20,000.00	
Nov. 25, 1872.	7	,, ,, ,, ...	Jan. 28, 1873.	Jan. 28, 1873.	10,000.00	
Nov. 25, 1872.	7	,, ,, ,, ...	Jan. 28, 1873.	Jan. 28, 1873.	10,000.00	
Nov. 25, 1872.	7	,, ,, ,, ...	March 3, 1873.	March 3, 1873.	10,000.00	
Nov. 13, 1872.	7	,, ,, ,, ...	Mar. 16, 1873.	Mar. 16, 1873.	10,000.00	
June 30, 1872.	7	,, ,, ,, ...	On demand.	. . . . .	35,525.17	
Nov. 30, 1872.	7	,, ,, ,, ...	On demand.	. . . . .	40,110.51	
						$1,128,635.68
July 1, 1856.	6	Cambridge Water Bonds	July 1, 1881.	July 1, 1872.	50,000.00	
May 1, 1865.	6	,, ,, ,, ...	May 1, 1875.	Nov. 1, 1872.	186,400.00	
Aug. 1, 1865.	6	,, ,, ,, ...	Aug. 1, 1883.	Aug. 1, 1872.	55,000.00	
July 2, 1866.	6	,, ,, ,, ...	July 2, 1886.	July 2, 1872.	100,000.00	
April 1, 1867.	6	,, ,, ,, ...	April 1, 1888.	Oct. 1, 1872.	150,000.00	
April 1, 1868.	6	,, ,, ,, ...	April 1, 1888.	Oct. 1, 1872.	175,000.00	
May 1, 1869.	6	,, ,, ,, ...	May 1, 1889.	Nov. 1, 1872.	112,000.00	
July 1, 1870.	6	,, ,, ,, ...	July 1, 1890.	July 1, 1872.	60,000.00	
May 1, 1871.	6	,, ,, ,, ...	May 1, 1891.	Nov. 1, 1872.	50,000.00	
						938,400.00
Oct. 1, 1863.	6	Trustees Daniel White Charity	. . . . .	Oct. 1, 1872.	5,000.00	
June 1, 1858.	6	Trustees Dowse Institute Fund	. . . . .	June 1, 1872.	10,000.00	
Oct. 8, 1864.	6	Trustees Sanders Temperance Fund	. . . . .	Oct. 8, 1872.	10,000.00	
						25,000.00
		State Tax	Dec. 1, 1872.	. . . . .	58,580.00	
		County Tax	Dec. 31, 1872.	. . . . .	33,968.74	
						92,548.74
						$2,184,584.42

REPORT

OF THE

TRUSTEES OF THE SINKING FUND OF THE CAMBRIDGE WATER WORKS.

The undersigned, Trustees of the Sinking Fund of the Cambridge Water Works, respectfully submit the following Report: —

Amount of Fund, June 30, 1871		$89,383.12
Received from sale of Iron Pipe		1,953.80
Received from Registrar for rates, supplies, &c., for the year	$126,283.50	
Less amount paid for care, repairs, &c.	$42,114.29	
Less interest on Water Bonds	56,304.00	
	98,418.29	
		27,865.21
Interest on sundry temporary loans to the City		2,629.32
Interest on Fund		4,472.60
Amount due to the Fund at the date of the purchase of the Works, and not previously credited, including Interest on same to June 30, 1872		3,044.12
		$129,348.17
Accrued interest on Bonds to June 30, 1872		1,724.50
Actual value of Fund, June 30, 1872		$131,072.67

The Fund is invested as follows: —

Cambridge Water Bonds	$93,823.00	
City of Cambridge Note	35,525.17	
		$129,348.17

ALVARO BLODGETT,
JOS. WHITNEY,
Trustees of the Sinking Fund of the Water Works.

CAMBRIDGE, *Dec.* 28, 1872.

REPORT

OF THE

COMMITTEE ON SOLDIERS AND THEIR FAMILIES.

The Joint Committee on Soldiers and their Families submits to the City Council its Report for the year ending Nov. 30, 1872.

The whole number of cases in which aid has been granted during the year has been 285. The number now on the list is 272.

The appropriation for Volunteers and their families was	$21,200.00
The amount paid from said appropriation to Nov. 30, as appears by the books of the Auditor, was	21,000.00

The payments of State Aid, as returned to the Auditor of the Commonwealth, are for the year ending Dec. 31, 1872, and amount to $20,480.25, of which sum $20,114.25 will be reimbursed to the City by the State.

The monthly payments now amount to about $1,700, and an appropriation of $21,000 will be sufficient for the ensuing year.

All which is respectfully submitted.

EDWARD KENDALL,
WILLIAM CALDWELL,
CHAS. R. PATCH,
JOSEPH COGAN,
F. IVERS,

Committee on Soldiers and their Families.

Cambridge, *Jan.* 2, 1873.

REPORT

OF THE

COMMISSIONERS OF THE CAMBRIDGE CEMETERY.

To the City Council of the City of Cambridge:—

THE Commissioners of the Cambridge Cemetery herewith submit their Eighteenth Annual Report, for the year ending Nov. 30, 1872.

The receipts of the Cambridge Cemetery for the year ending Nov. 30, 1872, have been as follows:—

Cash received for burial lots	$8,739.00	
,, ,, ,, fees	1,610.00	
,, ,, ,, care of lots . . .	1,971.72	
,, ,, ,, grave-markers . . .	23.00	
,, ,, ,, hay	87.00	
,, ,, ,, wood	66.50	
,, ,, ,, sedge grass . . .	15.00	
Total		$12,512.22

The expenses for the year have been as follows:—

Superintendent's salary	$1,200.00	
Sundry workmen	8,029.33	
Other Expenses	1,481.05	
Total		10,710.38
Excess of receipts over expenditures .		$1,801.84
The total appropriation for the year .	$10,800.00	
,, ,, expenditure ,, ,, ,, . .	10,710.38	
Balance unexpended	$89.62	

The number of lots prepared and ready for sale on Dec. 1, 1872, was 21, — 48 less than the previous year. The number of lots sold, 76, — 24 less than in 1871. The whole number of interments for 1872 was 561, — an increase over the previous year of 76.

There has been an increasing demand for small lots, which have been prepared, and met with a rapid sale. The public lot has been rapidly filled, and there is already a demand for more room for this purpose, and the Commissioners have been compelled to meet this want by laying out a new lot. Heretofore parties from out of town have been allowed to bury in our Cemetery by the payment of a small fee; but it has been deemed prudent by the Commissioners, in view of the rapid increase of our own population, and the consequent demands made upon the space reserved in our Cemetery, to withdraw this privilege for the future.

The assiduous attention given by the Superintendent to the duties of his office, and the good taste manifested in the care of the grounds, in combination with the natural beauty of the situation, make our City Cemetery one of the most beautiful and desirable as a place of sepulture of the many beautiful cemeteries in the vicinity of Boston.

HENRY O. HOUGHTON,
J. C. FARNHAM,
JOHN SARGENT,
GEO. S. SAUNDERS,
CURTIS DAVIS,
Commissioners of the Cambridge Cemetery.

CAMBRIDGE, *Dec.* 26, 1872.

REPORT

OF THE

BOARD OF OVERSEERS OF THE POOR.

The Overseers of the Poor respectfully submit their Annual Report to the City Council for the financial year ending Nov. 30, 1872.

Appropriation made by the City Council at the beginning of the year . .	$42,000.00	
Additional Appropriation	700.00	
		$42,700.00
Amount of Expenses		42,610.26
Balance unexpended		$89.74

Receipts from various departments of the Almshouse have been as follows : —

Received from Farm products sold . .	$3,942.35	
,, ,, Piggery, sale of hogs and offal	4,834.78	
,, ,, Ledge, sale of stone . .	7,255.31	
,, ,, State, cities, and towns .	1,388.24	
,, ,, Board	275.25	
,, ,, Rent of house . . .	120.00	
,, ,, Sundry sources . . .	14.15	
		$17,830.08

Amount due and uncollected: —

From Ledge, stone sold	$7,447.43	
,, Farm	76.00	
,, Corn	42.50	
,, Board	300.00	
,, House offal	250.00	
		$8,115.93
Income in 1872		$25,946.01

Expended for various departments of the Almshouse and Stone Ledge during the year 1872: —

Salaries	$2,206.67	
Supplies for the house	6,182.63	
Dry-goods and clothing	1,054.44	
Sundry laborers	10,852.61	
Fuel	1,416.10	
Hay, grain, and meal	1,155.66	
Tools, hardware, &c.	641.94	
Assistance to poor out of the house	9,664.89	
Support of persons in State institutions	4,880.54	
Repairs	1,028.97	
*Small-pox patients	657.50	
Other Expenses	2,868.31	
		$42,610.26
Expense over income in 1872		$24,780.18
Deducting amount due and uncollected		8,115.93
Leaves deficiency over assets		$16,664.25
Value of personal property in 1872		$19,000.00
,, ,, ,, 1871		19,184.00

Average number of inmates during the year, eighty-six. The average number of the inmates the past year has been larger by

* This amount only represents what has been paid for nursing and physicians' bills. The Overseers estimate that they should be credited on account of their appropriation an amount equal to $3,000, for the expenses of small-pox patients.

twelve than the year previous: and to the additional care and labor thus involved has been added that of the Small-pox Hospital, which has only for short periods been without occupants, and sometimes containing as many as eight or nine at one time; but owing to the careful management of the Warden and Matron, assisted by Mr. Haynes and Mrs. Doe, Assistant Warden and Matron, the establishment has maintained a high character for neatness and order.

Since the commencement of the year the Piggery has been entirely abolished, and the buildings used for that purpose having been repaired, are now used for the storage of carriages and for the deposit and sale of swill. Under the present system the income does not pay the expense of collecting the swill.

It is respectfully recommended to the next City Council that some provision be made whereby it shall be for the interest of householders to save their house-offal to be removed by the City.

It is also to be hoped that our successors will take such measures as will secure its economical and prompt removal, so that there may be no just complaint on the part of the citizens.

The Overseers desire to call the attention of the Board of Health to the large establishment in the immediate vicinity of the Almshouse, used for a tannery and for the purpose of boiling up dead animals, as emitting a noisome and unpleasant odor, not conducive to either comfort or health.

The near proximity of the Hospital for Contagious Diseases, and the want of discretion on the part of the inmates of the Almshouse, caused the small-pox to get into the house last spring, and was the source of much inconvenience.

The Overseers would respectfully suggest that a Hospital be erected with kitchen and wards complete, and that it be placed under the charge of the Board of Health.

Although in no way belonging to the Almshouse, the Hospital for Contagious Diseases the past year has been under the charge of the warden of the Almshouse, and the expense charged to the appropriation for the same.

The Farm has been as productive as usual, and a large amount of stone has been taken from the ledge. The plan of weighing the

stone has proved successful. The horse distemper which has prevailed so extensively has impeded the operations of the Farm and Stone-ledge, and has resulted in the loss of a valuable horse.

The School at the Almshouse, although not in good condition at the beginning of the year, is now in excellent order and discipline. Miss Adams, the teacher, by her thorough sympathy with her pupils, by her genial and pleasant manners, and by the energy and zeal with which she devotes herself to her duties, has made the School, notwithstanding its organic difficulties, one of the best in the city. Her residence in the house is also of great advantage both to the pupils and family. The Sabbath School is in its usual good condition, its success being due very much to the management of Mr. Patch, of the Board of Overseers, and Mr. Walton, of the Young Men's Christian Association.

The Board of Overseers, in closing their Report, would respectfully ask the City Council to consider —

1. Whether it would not be desirable to petition the General Court for an alteration of the charter, that the Board of Overseers may be elected for three years, two each year respectively, and thus secure a more permanent Board than is obtained by an annual election.

2. Whether some mode of heating and lighting the House might not be devised more economical and better than the present method, which is by stoves and kerosene lamps. An addition to the stable is also needed.

3. Whether such changes may not be made in the House as will secure a more thorough separation of criminals, the worthy poor, and children. At present there is no separation, except that of the sexes.

H. O. HOUGHTON,
BENJ. F. WYETH,
CHAS. R. PATCH,
EDWIN H. BLAKE,
F. A. GERRY,
CURTIS DAVIS,
L. B. GUYER,

Overseers of the Poor of Cambridge.

CAMBRIDGE, *Dec.* 28, 1872.

REPORT

OF

JAMES R. MORSE, M.D.

VISITING PHYSICIAN.

To the Overseers of the Poor of the City of Cambridge: —

GENTLEMEN, — At the close of the present municipal year it again becomes my duty to present to your Board a Report of the sanitary condition of this institution of charity, the care and welfare of which is placed in your hands by the City of Cambridge. You will therefore at the outset allow me, in presenting this Report, to suggest, upon a careful review of the amount of sickness and the character of the diseases which have prevailed during the year at the Almshouse, and at the Hospital for Contagious Diseases connected therewith, that the present year has been very unfortunate in having an unusual amount of sickness from the ordinary class of diseases; and more especially has it been unfortunate in the remarkable prevalence of the small-pox, in its various forms, as an epidemic.

At no time since the establishment of this Institution in its present locality has the disease prevailed to such a fearful extent in our city. And in the history of its progress and increase during the year it may be proper to call your attention to the fact that in the earlier portion of the year the disease seemed so far to conform to the very limited accommodations which the City had provided for diseases of a contagious character, that no very great inconvenience or unnecessary suffering was realized by the inmates; but during the last few months the number of patients has increased

so rapidly that the demand for room has been greatly beyond the supply. But it affords me great pleasure to report that, in consequence of the recent erection of an addition to the building by which two newly finished and newly furnished rooms have been provided, we have at the present time a supply of room equal to the present demand. It also gives me great pleasure to report to your Board that the Warden and his assistants have at all times been diligent and persevering in their efforts to increase the internal and external conveniences of the Hospital building, and to promote the comfort of all those whom, from the character of their disease, it becomes desirable to cause to be removed from the more endearing comforts of a home, and from the more kindly attentions prompted by a mother's or a sister's love and affection. You will also pardon me in the expression of an unusual personal interest in all those who have under such circumstances been placed under my care, hoping that by a careful attention to all their wants, life in these their hours of suffering might be rendered more desirable, and that, with the blessing of God, they might at an early day be restored to health and to the companionship of their friends.

The whole number placed under my care at the Hospital during the year has been thirty-four; of that number there were five cases of confluent small-pox, with hemorrhage: all of the hemorrhagic cases proved fatal; of the twenty-nine cases in which there was no hemorrhage, there have twenty-eight recovered, or are now convalescent, — one small child having been the only fatal case where the disease was uncomplicated with hemorrhage. There are ten in the Hospital at the present time. The average number of inmates the last six weeks has been seven. In closing the Report of this part of my professional labor during the year now closing, permit me to suggest that I have regarded it as my first duty to secure to those under my care all the comforts which can be brought to the sick-bed, and to avoid all criticisms in regard to the wants and inconveniences, which are only a common and almost necessary attendant upon the earlier stages of a terrible epidemic. But the lesson of providing for the unexpected ills of life is now learned; and it will be well to profit by the experiences which have been ours in the great lessons of human life.

Of the Almshouse proper my Report must be very brief. I will therefore refer only to those facts which seem most important as a part of the history of the Institution. The average number of inmates, and especially the number upon the sick list, has been very much larger than that of former years. The long list of chronic cases arising from poisoned and broken-down constitutions, and the large number of very aged people far advanced in life's decline, seem almost to render this institution of charity a hospital for the infirm and life-worn pilgrim, who seems only waiting for the passage to a better home where there is less of suffering and decay.

There has been about the usual amount of acute disease. Some severe cases of lung fever, of typhoid fever, and various other forms of active disease have occurred, but they have all yielded readily to the care and treatment which they received, and have recovered. Among the chronic cases, most of whom have been long sick, there have eight died during the year from the following diseases: from consumption, one; from diabetes, one; from delirium tremens, one; from chronic ulcers, one; from marasmus, one; from paralysis, one; from cholera infantum, one; from organic disease of the heart, one. Also during the year there have been four confinements at the Institution, all of which made a good recovery.

In the early part of the year two foundlings were sent to the house, and received the kindly care of the Matron and her assistants, until otherwise provided for. I have visited persons out of the house, who had made application for aid from the City, to learn their wants and to advise in reference to what would most contribute to their comfort and welfare, whenever desired to do so by any member of your Board.

The present year has been one of unusual responsibility and greatly increased labor. The fact that we have been in the midst of a terrible epidemic, which must be not only cared for, but guarded, for fear of its extension beyond our control, with increased sickness at the house, and in the family of the Warden, has rendered the present year one of constant labor and anxiety; and I should be untrue to my convictions of right, if I failed to bear testimony to the fidelity and watchful care of the Warden and Matron and

all others who have the immediate care of the house and its inmates in their hands. It is not necessary that I should remind you, gentlemen, that when the opportunity to relieve sorrow and suffering lies in your path, how great is the real happiness which is yours when you can bind up the wounds of those that the world, in its onward rush for wealth or fame, have forgotten. Your own personal satisfaction in the remembrance of the benevolent and arduous labor which you have so faithfully and successfully performed in the name of humanity, and for those on whose ears and hearts words of kindness fall not unheeded, can tell you how sweet is the joy of doing good better than any words of commendation that I can offer.

Thanking you, gentlemen, for your personal kindness to me,

I remain,

Respectfully yours,

J. R. MORSE.

CAMBRIDGE, *Dec.* 31, 1872.

REPORT

OF THE

CHIEF ENGINEER OF THE CAMBRIDGE FIRE DEPARTMENT.

FOR THE YEAR ENDING NOVEMBER 30, 1872.

FIRE DEPARTMENT OFFICE, CITY HALL,
CAMBRIDGE, *Nov.* 30, 1872.

To his Honor the Mayor and the City Council of Cambridge: —

GENTLEMEN, — The Chief Engineer of the Cambridge Fire Department, as required by the Fire Ordinance, herewith submits his Second Annual Report of the Steam Fire Department of Cambridge, under his charge.

The Report embraces, as will be found, a complete register of the members connected with the Department, and also gives in detail an account showing the working force of the Department, condition of the apparatus, and a tabulated statement of all fires and alarms during the year ending November 30, 1872. The losses by fire, with the amount of insurance, are also given as near as could be ascertained.

MORALE OF THE DEPARTMENT.

The Department consists of four steam fire-engines and a hook-and-ladder truck, all the apparatus being in charge of efficient and orderly companies, embracing a membership, as provided by ordinance, of seventy-seven persons. Besides this number, there are a chief and four assistant engineers, a telegraph operator,

and a relief engineer, who is employed to relieve the permanently connected members of the Department, thus making a working force of eighty-four men.

The engineers and drivers, the telegraph operator and the relief engineer, are required to devote their whole time in the performance of the service for which they are engaged. The other members of the Department only perform duty in case of fire, being paid a small yearly stipend for such service.

The Department has generally observed discipline and good conduct, a fact which redounds much to the credit of the members. Occasion has been presented, however, to pass official reprimand upon certain members for unbecoming conduct.

INCREASE OF THE DEPARTMENT.

The rapid growth of our city would seem to require additional fire apparatus, as a protection against fire; and while it may be believed that a sufficient water-pressure may be secured by increasing the height of the stand-pipe, yet it would not be an unwise outlay to add another steamer and company to the number we now have in service. With an increase of the water-pressure from the stand-pipe much may be accomplished in extinguishing fires by organizing hose companies, which, with lines of hose attached to fire hydrants, might succeed in controlling, or holding a fire in check, until a steamer should arrive and be put in service.

Hydrant streams cannot be expected to combat successfully with all fires; for in many instances fires occur in elevated sections of buildings beyond the reach of streams of water from such sources.

Our city embraces a large tract of territory; and it would seem but an act of justice to all tax-payers that their property should be more evenly, if the term may be used, protected against the ravages of fire. Should the large section of Belmont and Watertown which is desirous of annexation to Cambridge become a part of our municipality, the people there will want all the conveniences enjoyed by other sections of the city, such as water, gas, fire-engines, police, &c. We have already within our present boundaries localities standing as much in need of the things named

as will be the case should the annexation scheme be a successful one; and it will be but an act of public justice that charity should begin at home, where it is felt to be most needed.

In order that greater facilities may be furnished for the extinguishment of fires, I would respectfully recommend that a steam fire-engine be contracted for at an early day, and a company organized to take charge of it.

I would also recommend that a horse-hose company be organized as soon as possible, and that quarters be assigned for a new carriage in the proposed city building to be erected on the city lot, at the corner of Western Avenue and Green Street. With such an addition to the Department much valuable service may be expected; for, in connection with carrying a reel of reserved hose, often very much needed at fires, the company could also manage a line from a hydrant in many cases where the steamers would not be required.

I also deem it prudent to advocate the location of a hook-and-ladder carriage in the vicinity of Portland and Cambridge Streets, as it is quite evident that one ladder-truck is not sufficient for a city so large as ours. Such a location is believed to be the most desirable, as it will command the large manufacturing districts in the Third Ward, and the Lower Port below Portland Street.

On the nineteenth day of January, 1872, a new steam fire-engine was received from the Amoskeag Manufacturing Company of Manchester, N.H., and placed in charge of Niagara Engine Co. No. Three. This engine is of improved construction and powerful capacity, and has taken the place of the old engine which was built in 1862, and which is now used as a relief or spare engine during the making of repairs on either of the other engines in regular service. By the purchase of this new steamer the Department has secured a relief engine, which has long been needed.

In accordance with a previous recommendation made in writing to the City Council, three four-wheel hose-carriages, constructed by Mr. Andrew J. Jones, of this city, were delivered, and put in service on the tenth day of January, 1872. These carriages have been found to be far superior to the two-wheel carriages formerly in use; inasmuch as more hose can be carried on the reels, and greater safety is secured for the drivers, besides affording relief to the horses, who have now no back-burden to carry.

The several additions to the running apparatus, as mentioned above, have proved the wisdom of the outlay, for the new machinery has been found very essential.

APPROPRIATION AND EXPENDITURES.

The appropriation for the Department made at the beginning of the year was $55,000, from which $8,000 were transferred to the appropriation for Incidental Expenses, thus leaving an absolute appropriation of $47,000 for uses of the Department.

The expenditures for all causes during the year have been $42,373.56, leaving an unexpended balance of $4,626.44. Of the extraordinary expenses of the year, it may be proper to say that the sum of $4,400 was expended for a new steam fire-engine, $2,600 for new hose-carriages, and $1,919 for new hose, making a total for extra equipments of $8,919, which, deducted from the appropriation proper, makes the actual running expenses of the Department, including the pay of members, $38,081.

The principal items of expenditure for the Department were as follows: —

Services of Members	$22,500.95
Hose and repairs	2,253.38
Hay, grain, and meal	2,585.51
Fire-alarm telegraph	1,574.28
Repairs and materials	1,509.83
Harnesses and repairs	335.74
Hard and soft coal	366.69
New apparatus	7,000.00
Other expenses	4,247.18
	$42,373.56

HOUSES OF THE DEPARTMENT.

The several houses used by the Department are in about the same condition as they were when the last Report was presented. Engine-houses Nos. Three and Four are comfortably and conveniently arranged, and do not require any very costly changes.

A cellar should be constructed under the house of No. Four, and separate sleeping-rooms should be furnished for the permanently employed men. The houses occupied by Nos. One and Two require very great changes to make them comfortable for the men and convenient for the uses for which they are occupied.

I would respectfully suggest that the house of No. Two be thoroughly reconstructed, and trust the plans prepared for the contemplated alteration of the house occupied by No. One may be again considered with a view of affording the conveniences needed by the Fire and Police Departments.

In a communication to the City Council the present year, I recommended the erection of a hook-and-ladder house; and by vote of the government a lot of land was purchased at the corner of Western Avenue and Green Street, and the Committee on Public Property was directed to prepare plans and estimates for a building to be erected on said lot, which I am happy in saying has been done, the Committee having presented very elaborately drawn plans for a building which, if erected, will furnish accommodations for the Fire and Police Departments and for other city purposes.

PROTECTION AGAINST FIRE.

I would again call your attention to the careless manner in which buildings are constructed in this city, and would recommend that proper ordinances be passed to prohibit the continuance of the system of erecting buildings in the manner in which it is now done, or else a sweeping conflagration will visit us.

Blocks of buildings, two, three, and four stories high, and surmounted with Mansard roofs, are run up without partition walls of brick to separate the several tenements which compose the block.

Chimneys are erected with no foundations, but are either set upon iron or wooden pillars in the first or ground story, or are held in suspension by iron clamps which are fastened to the floor timbers in the upper or second story. This manner of construction, as I believe, is often the means of communicating fire, and it must necessarily, should a fire occur in a building under such a form of

construction, tend to cause injury and possible loss of life to firemen or others. I would urgently ask the passage of an ordinance which shall prescribe the mode of construction of all buildings within the city limits.

DEPARTMENT HORSES.

The several horses owned by the City and employed in this Department, are generally suited to the purpose for which they are used, and are in good condition, excepting one of the horses attached to No. Three Engine. Being affected in his respiratory organs, he is liable to give out on a drive of any considerable distance, and it may be found necessary to replace him with a sounder animal at any moment. All of the horses of the Department, fourteen in number, were attacked by the epizootic or horse distemper, which had so wide a run during the months of October and November. By careful attention and a relaxation from the performance of labor, every animal recovered, and all are as sound, so far as that disease is concerned, as ever.

LEADING HOSE.

During the past year 1,200 feet of leather hose have been purchased from Messrs. James Boyd & Sons, of Boston, which, added to the amount previously on hand, makes a complement of 8,000 feet now in use. The larger portion of the hose in service may be classified as ordinary and unsuitable to sustain a water pressure such as is required, and should be replaced with standard hose, such as was purchased in 1871 and 1872. I would recommend that a special appropriation be made each year for the purchase of durable leather hose, and would further recommend that 3,000 feet of hose be negotiated for at as early a day as possible.

FIRE-ALARM TELEGRAPH.

This very essential auxiliary to the Fire Department has worked admirably during the year, and by the instantaneous notice of the existence of fires which it gives to firemen, much valuable property has been saved from destruction. One signal-box, No. 31, has

been added since my last report, and is located at the corner of Cambridge and Rideout Streets, in a neighborhood composed altogether of wooden buildings.

By vote of the City Council, and through the politeness and public spirit of Professor Joseph Winlock, of the Cambridge Observatory, a line of wire has been run between the clock at the Battery Station on Church Street and the Observatory Building, by which connection accurate meridian time is secured and transmitted to the bells connected with the fire alarm, so that all citizens are enabled to adjust their watches and clocks with accuracy, the time being announced by a stroke upon the bells at noon.

There are many localities which are thickly settled, and which are entitled to better protection from fire, and I would therefore recommend that additional fire-alarm signal-boxes be purchased and located in such neighborhoods as are alluded to.

Owing to a great lack of room in the quarters heretofore occupied by the battery, the old police court-room on Church Street was transferred to this Department for use of the battery equipments, which were removed thereto, and where they are now located. The change has enabled the superintendent and operator to materially enlarge the battery for the better working of the several lines of wire which run from it to all parts of the city.

Complaint has been expressed, and perhaps with justice, that a bell-striker has not been attached to one of the church bells in the Fourth Ward. The Ward is a populous one, and the citizens and firemen have as great a desire to know the location of a fire on an alarm as do the residents of the other Wards where strikers are furnished.

In my opinion every Ward of the city should be supplied with a striker, and I would therefore recommend that one be purchased and placed in a bell-tower in Ward Four.

FIRES AND ALARMS.

The number of fires and alarms during the year has been less than those reported for the year ending November 30, 1871; but the loss by fire and water has been greater by several thousands of dollars. This statement may be explained by the fact that most

of the loss sustained occurred at three fires: the Revere Sugar Refinery, the Lubricating Oil Works, and Clark's Furniture Manufactory.

In the first instance, the fire caught in the fifth story of the building, and spread with great fury, aided as it was by a strong north-westerly wind. Before its extinguishment could be accomplished, much of the valuable stock in the lower stories was damaged by water, large quantities of which were required to be used. The loss sustained by the owners, Messrs. Nash, Spaulding, & Co., amounted to the large sum of $70,000. At the burning of the oil-works, property to the amount of more than $30,000 was destroyed; and the loss by fire at the furniture manufactory of Mr. Clark reached the sum of about $25,000: making a grand total of losses of nearly $125,000 at three fires, or more than three-quarters of the gross loss.

The whole loss by fire since the last Report was submitted amounts to the sum of $146,084, upon which an insurance of $117,484 existed, thus leaving a net loss over and above the insurance of $28,600.

It may not be out of place to express congratulation that the losses have been no greater, when it is considered that our city is so rapidly growing and is so largely composed of wooden structures. The promptitude exhibited by the firemen in responding to all calls may be considered the principal reason why no serious conflagration has overtaken us; for much is due to their ready action in such cases in confining the fire to the immediate locality in which it originated.

There have been seventy-seven alarms during the year for all causes; and of this number nine were given for fires out of the city, sixty-three for fires in the city, and five for other causes.

The Department has been aided at fires by the services of the Departments of Boston, Charlestown, Somerville, and Belmont, with whom a most cordial feeling of fraternity exists.

The Department has rendered assistance in Boston, Somerville, and Arlington, and at the great fire in Boston on the 9th and 10th of November. Engine Companies Nos. Two, Three, and Four, and the Hook-and-Ladder Company, distinguished themselves in their heroic and persistent efforts to check the progress of the flames.

During the week following the fire, Engine Companies Nos. One and Three continued to perform service in playing upon the ruins, under which many valuable safes were buried. Delegations of firemen from the several companies also tendered their services to their brethren of Boston, who had become fatigued and prostrated from the many hours of incessant labor.

The assistant engineers of this Department also tendered their services on the same occasion, and performed a line of duty which received a cordial acknowledgment.

FIRE HYDRANTS.

It is a source of gratification to report that the number of fire hydrants has been largely augmented the present year, to such an extent, indeed, as to provide greater facilities for the extinguishment of fires.

By the politeness and cordial co-operation of Samuel W. Dudley, Esq., the efficient superintendent of the Waterworks, hydrants have been set in such localities as have been designated, and particular care has been taken to locate hydrants on the line of all street mains which have been laid during the past season. With these very necessary water facilities, but little delay is experienced by the firemen in getting a stream of water on a fire after its discovery; and it is the intention of that gentleman and the Chief Engineer to continue to make such additions to the number of fire hydrants as may be thought essential to the well-being of our city.

INJURIES TO FIREMEN AND CITIZENS.

As required by the ordinance, I submit a list of the names of those injured during the performance of duty, and also report the particulars attending the death of a young lad by suffocation at a fire on Western Avenue.

On the night of December 27, 1871, a young man named Belcher, a volunteer of Franklin Hook-and-Ladder Company No. One, was severely cut upon the arm by falling glass from an upper story of the Revere Sugar House on Water Street, which was on fire.

At the same fire the Chief Engineer received a scalp wound by

the fall of a slate from the roof of the building. On the evening of April 2, 1872, Edward H. Felt, aged five years and two months, son of Mr. Charles W. Felt, residing at the corner of Western Avenue and Kinnaird Street, was suffocated in his bed by smoke which entered his sleeping room from another part of the building which was on fire. The body of the boy was removed from the burning building on the arrival of the firemen, but not before life was extinct.

Mr. Thomas J. Leighton, telegraph operator, met with a very serious accident on the morning of April 6, 1872, while protecting the property of the City. To prevent damage to the telegraph wire by the moving of a building through the streets, a license having been granted for such removal, Mr. Leighton ascended to the roof of the building in order to clear the wire from contact with the chimney connected with the building. While engaged in the performance of his duty, the building lurched to one side, and so suddenly as to displace the chimney near the roof and to cause its fall, carrying Mr. Leighton with it, and burying him beneath the bricks and mortar. Upon being extricated, he was found to be severly injured at the base of the spine, from which injury it is feared he may never recover. As the injured man was a faithful servant of the City, and was in the performance of his duty at the time of receiving the injury which has confined him to the house since the accident, it will be but an act of justice, and not of charity, that provision be made for his support.

On the second day of May, 1872, Mr. Warren G. Eaton received a very serious injury while riding on Steamer No. Three in response to an alarm from Box 28. The fleshy part of the right leg of Mr. Eaton was badly lacerated, by coming in contact with one of the rear wheels and a suction stanchion.

In response to an alarm of fire on the evening of November 9, 1872, from Box 13, which was given in answer to a call from Boston for assistance at the great fire in that city, Mr. William S. Frazier, a volunteer fireman connected with the Hook-and-Ladder Company, and Frank D. Olmstead, a volunteer associated with Engine Company No. One, rendered assistance toward forwarding the Cambridge fire apparatus to the fire. While at the fire,

endeavoring to save the lives and property of others, both lost their lives.

At great personal risk of his own life, Mr. Robert T. Hixon, a member of Engine Company No. One, succeeded in recovering the body of young Olmstead from beneath the ruins of brick and mortar which had partially covered him, and which had caused such injuries as to lead to fatal results on the following day. The noble act of Hixon, in rescuing the body of his friend from the ruins and flames which surrounded it, has received, as it deserved, a fitting recognition. Mr. Frazier sacrificed his life while manfully striving to render assistance to others; and his body, which was buried beneath the ruins, has never been recovered, although frequent and diligent search has been made to recover the smallest vestige of the remains. The deceased were both young, and were highly esteemed by their associates and friends.

ADMISSIONS AND DISCHARGES.

During the year there were 23 persons admitted as members of the Department, and 22 discharged, as follows: —

Admitted. No. One, 4; No. Two, 1; No. Three, 6; No. Four, 4; H. & L., 8. Total, 23.

Discharged. No. One, 4; No. Two, 1; No. Three, 6; No. Four, 3; H. & L., 8. Total, 22.

LOCATION OF FIRE ALARMS.

The following table will show the number of alarms given in the several wards from Dec. 1, 1871, to Nov. 30, 1872: —

Ward.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Totals.
1	1			2	1	3		1		3	1	3	15
2	1	1	2	1	1	1	2	1	1	1		3	15
3	2	4		2	1	2		1	2	3		7	24
4	1				3	2	1	1	3			3	14
5		1	1	1			1	1				4	9
Totals	5	6	3	6	6	8	4	5	6	7	1	20	77

It will be seen by the above that nearly three-quarters of the alarms for the year originated in Cambridgeport and East Cambridge, sections which contain large numbers of manufacturing establishments, which are more liable to take fire from friction of machinery or spontaneous combustion than buildings in other sections of the city.

HOURS AT WHICH FIRES OCCURRED.

The annexed table will show the hours at which alarms of fire were given, no care being taken to give the fractions of time: —

1871-72.	A. M.												Total A.M.	P. M.										Total P.M.	Total.
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		
December			1						1				2	1									1	1		3	5
January					1							2	3				1	1				1				3	6
February																	1	1		1						3	3
March	1								1			1	3				1		1	1						3	6
April																	1		1	1	2				1	6	6
May	1											1	2			1			1		2	2				6	8
June		1											1											2	1	3	4
July															2				1		1	1				5	5
August												1	1				1	1		1		2				5	6
September									1		1		2		1	1						1		2		5	7
October																		1								1	1
November	1					1						2	4			1		1	5	2	4	1		2		16	20
Totals	3	1	1		1	1			3		1	7	18	1	3	3	5	5	9	6	9	8	1	7	2	59	77

DESIGNATION OF ALARMS.

A list of the signal-boxes which have been struck during the year in giving alarms, is herewith presented: —

Box 2 has been struck 1 time.
„ 6 „ „ „ 2 „
„ 8 „ „ „ 4 „
„ 9 „ „ „ 2 „
„ 12 „ „ „ 5 „
„ 13 „ „ „ 7 „
„ 14 „ „ „ 7 „

Box 24 has been struck 2 times.
„ 25 „ „ „ 1 „
„ 26 „ „ „ 3 „
„ 27 „ „ „ 2 „
„ 28 „ „ „ 5 „
„ 32 „ „ „ 2 „
„ 36 „ „ „ 1 „

Box 37 has been struck 4 times.								Box 68 has been struck 2 times.					
„ 41 „ „ „ 1 „								„ 69 „ „ „ 3 „					
„ 46 „ „ „ 1 „								„ 72 „ „ „ 3 „					
„ 47 „ „ „ 1 „								„ 78 „ „ „ 1 „					
„ 59 „ „ „ 7 „								„ 79 „ „ „ 4 „					
„ 65 „ „ „ 1 „								„ 82 „ „ „ 2 „					

CLASSIFICATION OF FIRE ALARMS.

The following table will show the number of alarms for each day of the week, and each month in the year, beginning Dec. 1, 1871, and ending Nov. 30, 1872: —

1871-72.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Total.
Sunday . . .		1			1		1			1		2	6
Monday . . .					1	2			1	2		3	9
Tuesday . . .		3			1	1	1			1		1	8
Wednesday . .	2		1	2		2	1		2			4	14
Thursday . .	1		1	2	1	1		3	2	2		2	15
Friday . . .		2		2	2			1				3	10
Saturday . .	2		1			2	1	1	1	1	1	5	15
Totals . . .	5	6	3	6	6	8	4	5	6	7	1	20	77

EXPENDITURES OF THE DEPARTMENT.

The following table shows the monthly expenditures made for the Department for the fiscal year beginning Dec. 1, 1871, and ending Nov. 30, 1872: —

Appropriation . . .	$47,000.00
Expenditures . . .	42,373.56
Unexpended . . .	$4,626.44

December, 1871	$2,109.33	June	$4,350.59
January, 1872	6,607.15	July	2,725.63
February	7,121.03	August	2,636.29
March	2,784.71	September	2,400.53
April	2,458.26	October	3,035.05
May	3,230.22	November	2,914.77

RECEIPTS OF THE DEPARTMENT.

The receipts of the Department from the sale of old materials, use of engines in pumping out cellars, clay-pits, &c., have amounted to the sum of $433.35, which amount has been paid into the City Treasury, and will be included in the annual financial statement of the City Treasurer.

LOSSES BY FIRES.

The table presented below will show the amount of loss by fire from 1862 to 1872 inclusive, with the amount of insurance on the property destroyed : —

Year.	Amount of Loss.	Amount of Insurance.	Loss over Insurance.
1862	$23,475	$10,175	$13,300
1863	15,440	8,040	7,400
1864	16,345	7,040	9,305
1865	31,140	18,830	12,310
1866	124,790	77,795	46,995
1867	17,666	15,266	2,400
1868	29,540	13,390	16,150
1869	264,423	139,473	124,950
1870	40,750	27,750	13,000
1871	127,300	124,135	3,165
1872	146,084	117,484	28,600
Totals	$836,953	$559,378	$277,575

ACKNOWLEDGMENTS.

I wish to convey, through this official channel, my warmest thanks to His Honor the Mayor, the City Council, and the Committee on Fire Department, for the cordial support of such measures for the good of the Department as have been recommended during the past year. The Board of Engineers will also accept my thanks for their prompt and energetic co-operation and support ; and this is also a proper time for the expression of my deepest obligations to the members of the Fire Department for their faithful performance of duty. The services rendered by the Police Department and members of the Fire Police corps are duly recognized and appreciated. On behalf of the Fire Department and the

citizens of Cambridge I desire to tender grateful acknowledgments to the fire departments of Boston, Somerville, Charlestown, and Belmont, for valuable assistance rendered at fires in this city during the year, and to the Chiefs of those Departments my personal thanks are hereby extended.

Respectfully submitted.

PATRICK H. RAYMOND,

Chief Engineer Cambridge Fire Department.

APPENDIX.

Committee on Fire Department.

Aldermen	Sortwell and Woodbridge.
Councilmen	Hall, Porter, and Smith.

Board of Engineers.

Name.	Age.	Residence.	Occupation.
Patrick H. Raymond, Chief . .	42	20 Jay Street . . .	Reporter.
Thomas J. Casey, 1st Assistant	39	173 Cambridge Street	Carver.
Albert Norris, 2d ,,	42	34 Western Avenue .	Builder.
Edward F. Belcher, 3d ,,	31	40 Holyoke Street .	Saloon-keeper
Daniel O'Connell, 4th ,,	44	219 North Avenue .	Clerk.
Daniel O'Connell, Secretary.			

Cambridge Steam Fire Engine Company, No. 1.

House on Church Street.

This engine was built by the Amoskeag Manufacturing Company, Manchester, N. H., and is rated as second class. It is supplied with one steam cylinder $8\frac{1}{2}$ inches in diameter; one double-acting vertical plunger pump $4\frac{3}{4}$ inches in diameter, with 12-inch stroke. The engine is supplied with two copper tanks, which contain a supply of fresh water, to be used when drafting

sea water. The engine, when worked to its full capacity, will discharge 400 gallons per minute.

Put in service Sept. 18, 1864.

Name.	No. Badge.	Age.	Occupation.
John Kinnear, *Foreman*	1	36	Inspector of Customs.
William H. Emory, *Assistant Foreman*	2	39	Printer.
Edward E. Priest, *Engineer*	3	35	Engineer.
George Cooley, *Fireman*	4	40	Carpenter.
Hiram W. Hooker, *Driver of Engine*	5	34	Driver.
Jacob A. Holt, *Driver of Hose-Carriage*	6	42	Driver.
Hugh McNamee, *Hoseman*	9	43	Painter.
James E. Brennan, ,,	7	25	Clerk.
Conrad D. Kinnear, ,,	11	34	Clerk.
Francis P. Scanlan, ,,	13	26	Painter.
Daniel S. Mitchell, ,,	14	35	Photographer.
Robert T. Hixon, ,,	10	28	Carpenter.
John L. Jones, Jr., ,,	8	21	Printer.
John K. Perkins, ,,	12	23	Carpenter.

Union Steam Fire Engine Company, No. 2.

House on Main Street, near Winsor.

This engine is of the same style of construction as No. 1, and was also built by the Amoskeag Manufacturing Company, and put in service Aug. 1, 1863.

Name.	No. Badge.	Age.	Occupation.
William B. Cade, *Foreman*	15	38	Polisher.
Charles A. Paine, *Assistant Foreman*	22	32	Wood Moulder.
William Nickelson, *Engineer*	17	49	Engineer.
Amos B. Jarvis, *Fireman*	24	29	Paper Collar Cutter.
John H. Walker, *Driver of Engine*	19	43	Driver.
Joseph P. Cartwright, *Driver of Hose-Carriage*	20	36	Driver.
Charles E. Snow, *Hoseman*	26	29	Painter.
William H. Foss, ,,	27	32	Action Maker.
Jesse W. Haley, ,,	16	29	Engineer.
Arthur C. Day, ,,	25	34	Box Maker.
Daniel McCarty, ,,	21	33	Blacksmith.
Richard F. Tobin, ,,	18	28	Iron Moulder.
James Cunningham, ,,	28	30	Wood Turner.
Jeremiah R. Hobbs, ,,	23	24	Flask Maker.

Niagara Steam Fire Engine Company, No. 3.

House on Fourth Street.

This engine was contracted for in 1871, and put in service January 19, 1872, and is a fine and very powerful specimen of steam machinery used for the extinguishment of fires. Like all other steamers owned by the City, it was built by the Amoskeag Manufacturing Company, of Manchester, N. H. The engine is of first-class construction, and has a boiler 32 inches in diameter and 66 inches long, containing 301 brass tubes, each tube being 18 inches long and $1\frac{1}{4}$ inches in diameter.

The main forcing pump is $4\frac{3}{8}$ inches in diameter, and has a stroke of 8 inches in length. The steam cylinders measure $7\frac{3}{4}$ inches in diameter, with a stroke of piston of 8 inches.

The engine is complete in every particular, and, while being very beautifully ornamented and showy, is capable of discharging 600 gallons of water per minute.

Name.	No. Badge.	Age.	Occupation.
Thomas J. Dale, *Foreman*	32	31	Fish & Oyster Dealer.
Michael G. Collins, *Assistant Foreman*	36	28	Painter.
Hiram Blood, *Engineer*	31	40	Engineer.
Charles E. Berry, *Fireman*	29	24	Blacksmith.
James S. Casey, *Driver of Engine*	33	36	Driver.
Lorenzo H. Dale, *Driver of Hose-Carriage*	34	30	Driver.
John D. DeRonde, *Hoseman*	39	33	Cabinet Maker.
George W. Butler, „	40	29	Steam Pipe Fitter.
John Casey, „	41	22	Britannia Worker.
Elliott E. Alley, „	30	36	Upholsterer.
William F. Newman, „	38	26	Wood Worker.
Joseph T. Smith, „	35	24	Carpenter.
Charles W. Porter, „	42	24	Coal Dealer.
James H. Berry, „	37	28	Carpenter.

Daniel Webster Steam Fire Engine Company, No. 4.

House on North Avenue, near Russell Street.

This engine is of the double pump, second class, small size pattern, with $4\frac{1}{8}$-inch pump cylinders, and 8-inch stroke, steam cylinders $6\frac{7}{8}$-inch diameter, and 8-inch stroke; and, without fuel

or water, in weight 5,800 pounds. It was built by the Amoskeag Manufacturing Company, of Manchester, N. H., and put in service May 28, 1869.

Name.	No. Badge.	Age.	Occupation.
Dana R. Hovey, *Foreman*	43	33	Clerk.
John W. Holbrook, *Assistant Foreman*	44	30	Carriage Trimmer.
John E. Ricker, *Engineer*	45	28	Engineer.
Sylvanus G. Griffin, *Fireman*	50	26	Machinist.
George T. Presby, *Driver of Engine*	47	29	Driver.
George E. Muzzey, *Driver of Hose-Carriage*	48	30	Driver.
Benjamin Young, *Hoseman*	49	27	Carpenter.
Abiel E. Long, „	46	37	Wheelwright.
Charles E. Presby, „	51	32	Mason.
Harmon Parsons, „	52	26	Carpenter.
Richard Dignan, „	53	29	Driver.
William P. Cutler, „	54	29	Clerk.
Nathaniel W. Bunker, „	55	29	Carpenter.
George A. Rolfe, „	56		Painter.

The several hose-carriages which accompany the engines are drawn by horses, and have four wheels. The carriage connected with Engine 4 was built by Hunneman & Co., of Boston, and the others by A. J. Jones, of this city.

Franklin Hook and Ladder Company, No. 1.

House on Main Street, near Winsor.

Of this apparatus it may be well to say, that the conveniences so desirable in house accommodations are still lacking, and I would respectfully call your attention to the following extract from my last report: —

"This apparatus is drawn to fires by horses, and is lacking in suitable appendages. It is impossible to add longer ladders to the truck, owing to the condition of the building in which the carriage is stationed.

"The truck is set upon wheels altogether too low for an easy draught to the horses, but which were selected for the reason that the height of the room would not allow the use of wheels of a larger pattern.

"The driver's seat is necessarily quite elevated, — so much, indeed, as to prevent him from occupying it until the apparatus leaves the building, at which time he climbs up over the ladders to it. Although this course has been followed for some time, yet it is a most dangerous one, as the driver is liable to drop a rein in making the ascent, thereby giving free scope to his horses beyond his control and management.

"It is desired that something may be done to improve this condition of affairs before a terrible accident becomes the consequence."

Name.	No. Badge.	Age.	Occupation.
James P. Ewell, *Foreman*	62	36	Piano-forte key Maker.
Charles Emerson, *Assistant Foreman*	69	27	Confectioner.
George W. Lamson, *Driver of Truck*	59	31	Driver.
Lewis C. Clark, *Ladder-man*	71	27	Confectioner.
Charles S. Abbott, „	65	32	Box Maker.
James R. Bowlby, „	66	25	Blacksmith.
Charles H. Wiggin, Jr. „	70	24	Furniture Polisher.
John W. Downing, „	68	29	Hostler.
Hamilton Porter, „	63	29	Machinist.
Charles H. Waite, „	73	26	Flour Dealer.
Daniel G. Hill, „	60	36	Confectioner.
Charles A. Sharon, „	64	23	Machinist.
Elisha W. Morey, „	61	25	Furniture Polisher.
Albert S. Benson, „	72	28	Box Maker.
Clarence A. Moore, „	58	22	Confectioner.
John T. Mahaffey, „	67	27	Carpenter.
George R. Oliver „	57	21	Polisher.

Schedule of Property owned by the City,

And in possession of Engine Companies Nos. 1, 2, 3, and 4, Hook and Ladder Co. No. 1, and the Fire Alarm Telegraph.

Return of Engine Company No. 1, *for November* 30, 1872.

The following inventory of property owned by the City of Cambridge, and in charge of this Company, is correct: —

1 second-class steam fire-engine, with equipments.
1 four-wheeled hose-carriage, with equipments.
1000 feet leather hose, ordinary.
900 feet leather hose, good.
150 feet rubber hose, poor.
3 horses, in good condition.
1 set double harness.
1 telegraph gong.
Extra goose-necks, wrenches, &c.
Stable equipments in full.
1 set engine runners.
Iron and wooden shovels.
1 copper boiler.
1 bench vise.
50 feet hand hose and pipe.
3 stable blankets.
3 service blankets.
1 quire emery cloth.
1 fuel wagon.
1 bale cotton waste.
1 single harness, new.
1 single harness, ordinary.
1 riding saddle.
19 fire hats.
4 iron bedsteads.
8 mattresses, and complement of bedding.
1 parlor set, with extra pieces.
Carpeting and mats.
Window curtains and fixtures.
2 stoves, coal hods, and fire-shovels.
2 wagon-jacks.
3 tons cannel coal.
Hay and grain.
1 jack-screw.
2 sets lead reins.
1 set lead bars.
1 set lead traces.
2 tables.
Tin measures, baskets, office chairs, &c.

EDWARD E. PRIEST,
Engineer S. F. E. No. 1.

Return of Engine Company No. 2, *for November* 30, 1872.

The following inventory of property owned by the City of Cambridge, and in charge of this Company, is correct: —

1 second-class steam fire-engine, with equipments.
1 four-wheeled hose-carriage, with equipments.
1000 feet leather hose, good.
750 feet leather hose, inferior.
100 feet rubber hose, good.
100 feet rubber hose, inferior.
3 horses, one in good condition.
1 fuel wagon.
1 set double harness.
3 single harnesses.
2 shovels, 1 telegraph gong.
1 water bucket.
Stable equipments complete.
6 horse blankets.
15 fire hats.
16 sheets, 12 pillow-cases.
4 blankets, 4 comforters.
2 brooms, 2 pictures.
1 clothes chest.
1 roll-board, 1 hammer.
1 monkey-wrench.
1 spare axle.
2 stoves.
6 new office chairs.
2 copper boilers.
1 coal hod.

1 looking-glass.
1 set parlor furniture.
4 iron bedsteads.
75 feet hydrant hose and pipe.
1 riding saddle.
1 quire emery cloth.
Polishing materials.
1 set old wheels.
1 set engine runners.
Window curtains and fixtures.
Hay and grain, with necessary measures, cans, oils, &c.

WILLIAM NICKELSON,
Engineer S. F. E. No. 2.

Return of Engine Company No. 3, for November 30, 1872.

The following inventory of property owned by the City of Cambridge, and in charge of this Company, is correct: —

1 first-class steam fire-engine, with equipments.
1 four-wheeled hose-carriage, with equipments.
1100 feet leather hose, good.
950 feet leather hose, poor.
50 feet rubber hose, good.
50 feet rubber hose, poor.
3 horses, two in good condition.
1 set double harness.
1 single harness.
2 riding saddles.
1 telegraph gong.
Stable equipments complete.
3 iron shovels.
Hydrant and other wrenches.
16 spanners and belts.
14 hats, new.
3 stable blankets.
3 service blankets.
8 hose ropes.
4 iron bedsteads, spare.
1 set parlor furniture.
4 chamber sets.
8 mattresses.
16 sheets, pillow-cases, &c.
4 woollen chamber carpets.
12 rubber spittoons.
1 clock.
1 dozen hard-wood office chairs.
1 pair leading traces.
2 roll-boards.
5 lanterns.
1 quire emery cloth.
10 gallons lubricating oil.
1 reducing suction coupling.
2 axes.
50 feet hand hose and pipe.
1 copper boiler.
1 wheelbarrow.
1 hoe.
4 feather dusters and brushes.
1 bench vise.
1 spare valve rod.
1 set spare grates for engine.
1 short ladder.
1 wagon-jack.
4 water-buckets.
1 spare axle.
2 spare hose-carriage wheels.
1 set engine runners.
5 entry and door mats.
2 stair carpets.
2 dozen bathing towels.
1 set of hoisting tackle.
1 grain-chest and grain.
2 extra goose-necks.
10 window shades and fixtures.
25 pounds cotton waste.
1 spare whiffletree.
2 tons cannel coal.
Hard coal, &c.

HIRAM BLOOD,
Engineer S. F. E. No. 3.

Return of Engine Company No. 4, *for November* 30, 1872.

The following inventory of property owned by the City of Cambridge, and in charge of this Company, is correct: —

1 second-class steam fire-engine, with equipments.
1 four-wheeled hose-carriage, with equipments.
1400 feet leather hose, ordinary condition.
200 feet rubber hose, good condition.
100 feet cotton hose, worthless.
50 feet cotton hose, ordinary condition.
3 horses, in sound condition.
4 stable blankets.
1 telegraph gong.
3 service blankets.
3 fly blankets.
1 set double harness.
1 single harness.
2 tons cannel coal.
Lot anthracite coal.
1 packing cutter.
1 quire emery cloth.
Steel letter-dies.
Files and handles.
2 bunches hemp.
3 axes.
1 riding saddle.
1 riding bridle.
3 halters.
1 set hoisting tackle for stable.
Stable tools complete.
75 feet hand hose and pipe.
Half cord pine wood.
15 fire hats, new.
14 fire hats, worthless.
13 hose ropes.
10 spanners and belts.
3 snow shovels.
6 arm-chairs.
6 office chairs.
1 table.
1 clock.
3 stoves and pipe.
3 door-mats.
1 bench vise.
4 iron bedsteads.
8 mattresses.
8 blankets.
4 comforters.
Sheets and pillow-cases.
1 bureau and glass.
18 cane-seat chairs.
1 parlor set.
15 pictures and frames.
2 looking-glasses.
1 desk and table.
1 silver trumpet.
1 flag.
16 window curtains and fixtures.
3 woollen carpets.
8 settees.
1 50-feet splice ladder.
1 35-feet splice ladder.
1 26-feet splice ladder.
2 step-ladders.
1 wagon-jack.
1 H. & L. carriage, worthless.
1 fire-hook and pole, with miscellaneous articles of small value.

JOHN E. RICKER,

Engineer S. F. E. No. 4.

Return of Hook and Ladder Company No. 1, *for November* 30, 1872.

The following inventory of property owned by the City of Cambridge, and in charge of this Company, is correct : —

1 ladder carriage, in ordinary condition.
1 50-feet splice ladder.
1 36-feet splice ladder.
2 30-feet ladders.
1 25-feet ladder.
1 22-feet ladder.
1 20-feet ladder.
2 17-feet ladders (roof).
2 15-feet ladders (roof).
1 10-feet ladder (roof).
7 crotch poles.
2 hand hooks.
2 frame hooks with chains.
4 axes.
2 guy ropes.
1 hook rope.
2 street ropes with iron stakes.
1 sledge hammer.
1 carpenter's hammer.
3 rakes (one tine).
2 rakes (three tines).
8 pitchforks.
4 ladder dogs and belts.
5 buckets (poor).
1 reservoir wrench.
6 short straps.
2 oil-cans.
22 fire hats.
2 iron bedsteads.
2 stable and 2 service blankets.
4 bed blankets and necessary bedding.
20 common chairs.
6 arm-chairs.
2 tables.
2 stoves, 2 copper boilers.
1 set traverse runners.
3 ladders not in service, and other articles of a miscellaneous character.

GEORGE W. LAMSON,

Driver Franklin Hook and Ladder Carriage.

Return of Property in charge of Telegraph Operator, November 30, 1872.

Battery Station near Engine House No. 1, *Church Street.*

4 telegraphic repeaters.
5 galvanometers.
1 switch board.
214 battery cups.
25 zincs for battery.
4 church-bell strikers.
10 insulators and wire.
½ mile No. 9 wire.
⅛ mile compound wire.
4 pike poles.
1 iron bar, 1 post shovel.
1 shovel, 1 pair pliers.
1 saw, 1 wire reel.
30 pounds wrought nails.
30 feet Kerite wire (old).
100 pounds blue vitriol.
1 coal stove in battery room and equipments.
5 engine-house gongs.
8 engineers' and police-station gongs.
1 call bell.
40 street signal-boxes.
30 miles telegraph wire.
20 cross arms, 200 street poles.
1 rope, 2 screw-drivers.
1 vise and strap, 1 small drill.
1 hatchet.
17 brackets for chimneys, &c.
1 pair pole climbers.
1 gimlet, 1 syringe.

THOMAS J. LEIGHTON,

Telegraph Operator.

GEORGE J. BLAISDELL, *Assist. Telegraph Operator.*

RECAPITULATION.

Number of Engineers		5
Members		79
Fire Police		5
Steam Fire Engines		5
Hand Engine		1
Horses		15
Horse Hose Carriages		7
Hand Hose Carriages		1
Fuel Wagons		2
Feet of Leading Hose		8,100
H. & L. Carriage		1
Ladders		20
Large Hooks with Chains		5
Hand Hooks with Poles		4
Fire Rakes		5
Pitchforks		8
Crotch Poles		7
Fire Hats		85
Reservoirs		51
Hydrants		335
Alarms of fire in the city	68	
Alarms from fires out of city	9	
		77
Loss on Buildings and Stock	$146,084	
Insurance on Losses	117,484	
Total loss	$28,600	

FIRES AND ALARMS FROM DEC. 1, 1871, TO NOV. 30, 1872.

Day of Week.	Date.	Hour.	Box.	Owners of Buildings.	Occupants of Buildings.	Description of Buildings.	Location.	Loss.	Insurance.	Remarks.
	1871.									
Saturday .	Dec. 2	1 P.M.	47	Dr. E. R. Cogswell .	Dr. E. R. Cogswell .	Frame, 2½ stories	Broadway . .	Trifling.	. . . .	Overheated stove-pipe near woodwork.
Saturday .	,, 9	3 A.M.	46	Daniel Murphy . .	Michael Drinan . .	,, 1½ story .	Hancock St. .	$100	. . . .	Sparks from flue hole igniting excelsior on floor.
Thursday .	,, 21	9.50 A.M.	78	John M. Day . . .	John M. Day . . .	,, 1½ ,,	Concord Av. .	Trifling.	. . . .	Children playing with matches.
Wednesday	,, 27	10.50 P.M.	13	Nash, Spaulding, &	Nash, Spaulding, &	Brick, 5½ stories	Water St. . .	} 70,000	$70,000 {	Overheated kilns used in the manu-
Wednesday	,, 27	11 P.M.	12	Co.	Co.	,, 5½ ,,	,, ,, . .			facture of sugar.
	1872.									
Friday . .	Jan. 5	12 30 A.M.	13	William A. Munroe.	T. Hollingsworth .	Frame, 1½ story .	Cambridge St.	284	284	Overheated stove in workshop.
Friday . .	,, 5	5.30 A.M.	68	Union Railway Co. .	Union Railway Co. .	,, 1 ,,	Lambert Av. .	50	50	Overheated stove-pipe.
Sunday . .	,, 28	5.30 P.M.	8	Wm. Lincoln & Co..	Wm. Lincoln & Co..	Brick, 2 stories	Third Street .	Trifling.	. . . .	Burning out of "still" in Lubricating Oil Works.
Tuesday .	,, 30	12.15 A.M.	12	John Doherty . . .	People's Union Asso.	Frame, 1 story .	Bridge Street .	574	574	Ignition of matches on shelf, — probably caused by mice.
Tuesday .	,, 30	4.30 P.M.	12	Daniel Hagan . . .	Peter Ranagan . .	,, 2 stories	Winter Street	760	560	Fire caused by drying clothes too near cooking-stove.
Tuesday .	,, 30	9.50 P.M.	28	Mason & Hamlin .	Mason & Hamlin .	,, 1 story .	Broadway . .	Trifling.	. . . .	Spontaneous combustion of polishing cloths.
Saturday .	Feb. 10	5.40 P.M.	14	John Sexton . . .	Unoccupied. . . .	,, 2 stories	Jefferson St. .	,,	. . . .	Ignition of wood-work while drying plastering.
Thursday .	,, 22	7.15 P.M.	32	Unknown	Unknown	. . . . .	Somerville . .	. . . .	. . . .	At this fire Steamers 1, 2, and 3, and the H. & L. of this city were present and rendered efficient service.
Wednesday	,, 28	4.30 P M.	68	. . . . .	. . . . .	Burning brush .	Garden St. Ct.	Trifling.	. . . .	Needless alarm given by some person who believed a building to be on fire near the burning brush.
Friday . .	March 1	9 40 A.M.	79	William Beckett . .	Several families . .	Frame, 2½ stories	Sparks Street	,,	. . . .	Burning of kindling wood near stove.
Friday . .	,, 1	4.10 P.M.	9	Burton, Fellows, &	Burton, Fellows, &	,, 2 ,,	Gore Street .	,,	. . . .	Alarm needlessly given by an excited
				Co.	Co.					boy, who magnified a cloud of smoke and steam into what he thought a raging conflagration.
Wednesday	,, 6	12.5 A.M.	82	—— Hogan	—— Hogan	,, 1 story .	Belmont. . .	. . . .	. . . .	Alarm given in this city by some thoughtless person after the fire had been extinguished.
Thursday .	,, 7	6.20 P.M.	65	Daniel F. Fitz . . .	Daniel F. Fitz . . .	,, 2½ stories	Oxford Street .	Trifling.	. . . .	Smoke from furnace filling the house caused a scare, hence the alarm.
Thursday .	,, 21	7.30 P.M.	8	—— Sheridan . . .	Several families . .	,, 2½ ,,	Charles Street	,,	. . . .	Explosion of kerosene lamp.
Wednesday	,, 27	1 A.M.		Hovey & Co. . . .	Hovey & Co. . . .	,, 1½ story .	Line Street .	500	. . . .	No alarm was given in this city for this fire, but the Somerville Fire Department were on hand, an alarm having been given in that city.

Tuesday .	April 2	7.35 P.M.	37	T H Lenfest, C. W. Felt	T. H. Lenfest, C. W. Felt	Frame, 2½ stories	Western Av. & Kinnaird St.	$1,846	$1,846	Fire supposed to have been caused by mice gnawing matches. A son of Mr. Felt was suffocated before he could be rescued, as mentioned elsewhere.
Thursday .	,, 4	4.15 P.M.	41	Daniel Twoohey . .	Daniel Twoohey . .	,, 1 story .	Somerset St. .	Trifling.	. . . .	Children playing with matches in shed.
Friday . .	,, 12	8.55 P.M.	14	Alex. McElhaney .	Alex. McElhaney .	,, 2 stories	Porter Street .	1,835	1,835	Burning of barn, shed, and dwelling-house. Cause unknown, but supposed incendiarism.
Friday . .	,, 19	8.50 P.M.	38	E. T. Currier . . .	H. A. Hills and J. W. Haley	,, 2½ ,,	Pearl Street .	710	650	Ignition of kindling-wood in cellar near stove, and from thence the fire worked its way upward between the partitions.
Sunday . .	,, 21	6 05 P.M.	9	Lowell R. R. Corp. .	Lowell R. R. Corp. .	,, 1 story .	Bridge Street .	. . . .	. . . .	Alarm given under belief that the building was on fire, when it was not, the smoke from a chimney misleading the author of the alarm.
Monday . .	,, 29	12.50 P.M.	79	John Brewster . .	John Brewster . .	. . . . .	Sparks Street .	Trifling.	. . . .	Burning of old building materials set on fire by sparks from burning brush.
Wednesday	May 1	8.15 P.M.	13	Trinity M. E. Soc. .	Trinity M. E. Soc. .	Brick, 2½ stories	Cambridge St.	. . . .	. . . .	Alarm given to secure the services of the H. & L. Co. to aid the descent of John G. Dooris from the steeple of the building upon which he had climbed to secure a dangerous vane.
Thursday .	,, 2	6.05 P.M.	28	Dr. J. M. Thresher .	Geo. W. Martin . .	Frame, 2½ ,,	Washington St.	. . . .	. . . .	Burning out of chimney. Alarm needless.
Saturday .	,, 4	1.25 A.M.	14	John Gillon . . .	Several families . .	,, 3 ,,	Cambridge St.	100	100	Overheated furnace in tailor's shop setting fire to wood-work.
Monday . .	,, 6	9.05 P.M.	59	William Read . . .	Fulton, Long, & Co.	,, 3 ,,	Brighton St. .	3,570	3,570	Probable spontaneous combustion in polishing cloths.
Monday . .	,, 6	9.20 P.M.	59	,, ,, . . .	,, ,, . .	,, 3 ,,	,, ,, .			
Wednesday	,, 8	12.20 A.M.	37	Leonard Cox . . .	Leonard Cox . . .	,, 2 ,,	Soden Street .	Trifling.	. . . .	Sparks from furnace setting wood-work on fire.
Saturday .	,, 11	8.45 P.M.	59	Little Heirs . . .	Several occupants .	Brick, 1 story .	Dunster St. .	,,	. . . .	Combustible materials set on fire in out-building.
Tuesday .	,, 14	3.25 P.M.	26	Dalphon Osborn . .	Dalphon Osborn & Co.	,, 1 ,,	State Street .	,,	. . . .	Sparks from furnace igniting shavings in boiler-room.
Saturday .	June 1	11.35 P.M.	32	Edward Chamberlin & Co.	Edward Chamberlin & Co.	Frame, 2 stories	Cambridge St.	7,746	7,746	Fire caused by over-heated salamanders in the "arch." The loss by fire was quite small compared to the damage to stock of chemicals by water.
						Amounts carried forward . .		$88,075	$87,215	

FIRES AND ALARMS FROM DEC. 1, 1871, TO NOV. 30, 1872. — *Continued.*

Day of Week.	Date.	Hour.	Box.	Owners of Buildings.	Occupants of Buildings.	Description of Buildings.	Location.	Loss.	Insurance.	Remarks.
						Amounts brought forward		$88,075	$87,215	
Sunday . .	June 2	2.50 A.M.	69	Josiah Porter . . .	Francis Locke . . .	Frame, 2 stories	North Avenue	1,525	1,525	Hot ashes in wooden vessel carelessly placed in shed connected with building.
Wednesday	,, 12	12.15 P.M.	37	N. & G. D. Chamberlain	Amos Blazo . . .	,, 1 story .	River Street .	425	425	Children playing with matches in shed used by carpenters.
Tuesday .	,, 25	11.15 P.M.	14	—— Lloyd	Unoccupied . . .	,, 2 stories	Jefferson St. .	Trifling.	. . . .	Supposed incendiary origin.
Thursday .	July 4	2.20 P.M.	59	M. Norton	James B. Kent . .	,, 3 ,,	Farwell Place	969	969	Supposed effects of lightning, as the fire occurred during a violent thunder storm.
Thursday .	,, 11	8.12 P.M.	69	N. E. Brick Co. . .	N. E. Brick Co. . .	,, 1 story .	Walden Street	Trifling.	. . . .	Spontaneous combustion of painter's clothes stored in a barn.
Friday . .	,, 19	6 30 P.M.	2	. . . . .	. . . . .	. . . . .	Bridge Street .	. . . .	. . . .	Testing fire alarm after making changes.
Thursday .	,, 25	9 30 P.M.	28	. . . . .	. . . . .	. . . . .	Hastings St. .	. . . .	. . . .	Bonfire of shavings in the street.
Saturday .	,, 27	2.30 P.M.	24	Michael Egan . .	Michael McGane . .	Frame, 1½ ,,	Brookline St. .	Trifling.	. . . .	Burning of a bed.
Thursday .	Aug. 1	7 55 P.M.	28	Tower & Co. . . .	Tower & Co. . . .	,, 2½ stories	Broadway . .	,,	. . . .	Sparks from furnace in boiler-room igniting shavings.
Thursday .	,, 1	9 40 P.M.	13	Fred. C. Low . . .	Fred. C. Low . . .	,, 1½ story .	Cambridge St.	. . . .	. . . .	Smoke from chimney settling upon roof, hence the alarm.
Saturday .	,, 3	5.30 P.M.	26	Allen & Endicott .	J. J. Walworth & Co.	,, 1½ ,,	Osborn Street .	Trifling.	. . . .	Overheated furnace in foundry building.
Monday .	,, 5	4 P.M.	26	. . . . .	. . . . .	. . . . .	Main Street .	. . . .	. . . .	Testing fire alarm-box.
Wednesday	,, 7	12.45 A.M.	14	Unknown	Unknown	Frame	Medford St. .	. . . .	. . . .	Burning of frame-buildings in Somerville, at which fire Steamers Nos. 2, 3, and 4, and H. & L. of this city were present.
Wednesday	,, 7	9.45 P.M	25	Unknown	Unknown	Brick	South Boston .	. . . .	. . . .	Burning of sugar-house in South Boston. Steamers 1 and 2 of this city rendered assistance.
Sunday . .	Sept. 1	9.40 A.M	27	Julia Hartnett . .	Joseph Smith . . .	Frame, 1½ story .	Clark Street .	50	50	Defective stove-pipe cause of fire.
Tuesday .	,, 10	2 35 P.M.	12	W. C. Brooks & Co.	W. C. Brooks & Co.	,, 1½ ,,	Bridge Street .	Trifling	. . . .	Burning of bundle hay in storehouse.
Thursday .	,, 12	11.10 P.M.	8	Wm Lincoln & Co. .	Wm. Lincoln & Co.	Brick, 1½ ,,	Third Street .	24.000	8,350	The cause of this fire is attributed to the bursting of a "still" in the lubricating oil works. The combustible character of the large stock of oil made the fire very fierce, setting fire to the adjoining property, which consisted of dwelling-houses. Engines were present from Boston, Somerville, and Charlestown, besides the Cambridge Department.
Thursday .	,, 12	11.20 P M.	8	William A. Munroe .	Several families . .	Frame, 1 ,,	Third St. Ct. .	3.900	3,200	
				Patrick Conley . .	,, ,, . .	,, 2 stories	Third St. Pl. .	2,400	1,500	

Monday	Sept. 16	3.30 P.M.	59	Mrs. Bixby	Mrs. Bixby	Frame, 2½ stories	Brattle Street			Burning out of chimney. Alarm unnecessary.
Saturday	,, 21	9 P.M.	—	Harvard College	Cam. Observatory	Brick, 3 ,,	Bond Street			Still alarm in Ward One only, which was caused by a disarrangement of the clock line connected with the fire-alarm.
Monday	,, 23	11.50 A.M.	79	Patrick Conner	William McCourt	Frame, 1½ story	Sparks Street			Burning of rags on stove. Needless alarm.
Saturday	Oct. 19	5.10 P.M.	79	Charles Crawford	Charles Crawford	,, 1½ ,,	Murdock Place			Burning of bed; set on fire by children playing with matches.
Sunday	Nov. 3	1 50 A.M.	69	Unknown	Unknown		Arlington			Alarm given by police officer, who, seeing the light of the fire, struck the alarm under the impression that the fire was within the city limits.
Wednesday	,, 6	12.30 A M	37	Clark M. Wheeler	Clark M. Wheeler	Frame, 1½ story	Kinnaird St.	Trifling.		Overheated cooking-stove setting on fire the wood-work connected with the chimney.
Saturday	,, 9	7.35 P.M.	27	Various Parties	Various parties		BOSTON			Alarms given in response to calls for assistance at the great fire in Boston, at which Engines 1, 2, 3, and 4, and the H. & L. rendered valuable service. At this fire Frank D. Olmstead and William S. Frazier, volunteer firemen, lost their lives.
Saturday	,, 9	7.55 P.M.	13							
Saturday	,, 9	8 P.M.	13							
Saturday	,, 9	9 30 P.M.	6							
Sunday	,, 10	5 48 P.M.	36	Joseph A. Holmes	Charles H. Danforth	Frame, 1 story	Haymarket Sq.			Smoke from chimney in photograph saloon. Unnecessary alarm.
Tuesday	,, 12	6.40 A.M.	13	Trinity M. E. Soc.	Trinity M. E. Soc.	Brick, 2½ stories	Cambridge St.			Smoke from chimney while kindling a fire in furnace.
Monday	,, 18	3.15 P.M.	12	Timothy Shea	J. Brown	Frame, 2½ ,,	Bridge Street			Burning of grease in kettle on stove.
Monday	,, 18	11.20 P M.	59	James O'Brien	James O'Brien	,, 1½ story	Winthrop St.	200	150	Burning of hay in loft of stable. Supposed incendiary origin.
Monday	,, 18	11.30 P.M.	59	,, ,,	,, ,,					
Friday	,, 22	6.10 P.M.	24	Charles A. Adams	Charles A. Adams	,, 3 stories	Brookline St.			Sparks from chimney mistaken for a fire.
Wednesday	,, 27	8.15 P.M.	72	Samuel G. Reed	John Clark	,, 2 ,,	Reed Street	24,200	13,000	Sparks from furnace in furniture factory set on fire shavings in boiler-room.
Wednesday	,, 27	8.20 P.M.	72	Cornelius Sullivan	Cornelius Sullivan	,, 1½ story	,, ,,			
Wednesday	,, 27	8.35 P.M.	72	,, ,,	,, ,,					
Thursday	,, 28	6.35 P.M.	14	Devine & Smith	Devine & Smith	,, 2 stories	Ninth Street	1,100	1,100	Hack stable, supposed to have been set on fire.
Thursday	,, 28	6.40 P.M.	14	Charles Linnehan	Unoccupied	,, 3 ,,	,, ,,			
Friday	,, 29	12 M.	6	Cam. Gas Light Co.	Cam. Gas Light Co.	Brick, 1½ story	Third Street			Fall of building, and alarm given under supposition that workmen were buried beneath the ruins.
Friday	,, 29	6 P.M.	28	J. C. Davis & Co.	J. J. Gray	Frame, 2½ stories	Broadway	Trifling.		Upsetting of kerosene lamp.
Saturday	,, 30	6 P.M.	82	Newell Bent	Newell Bent	,, 2½ ,,	Brattle Street			Burning out of chimney.
								$146,844	$117,484	

RESERVOIRS.

LOCATED IN WARD ONE.

Bow Street, centre of Square.
Brighton Street, corner Eliot.
Cambridge Street, nearly opposite Sumner.
College Yard.
Garden Street, north end Appian Way.
Junction Garden Street and Concord Avenue, opposite Arsenal.
Kirkland Street, opposite Oxford.
Main Street, corner Dana.
Mount Auburn Street, opp. Orthodox Church.
Prescott Street, near J. D. Green's barn.
Square, front of house of late Dr. Holmes.

LOCATED IN WARD TWO.

Austin Street, between Temple and Inman.
Broadway, head of Tremont.
Broadway, corner Windsor.
Cambridge Street, corner Webster Ave.
Clark Street, corner Hampshire.
Essex Street, corner Austin.
Harvard Street, opp. Burial-ground
Harvard Street, head of Cherry.
Harvard Street, corner Davis.
Harvard Street, corner Prospect.
Main Street, junction Broadway.
Norfolk Street, midway between Broadway and Hampshire.
Prospect Street, 175 feet north of Broadway.
Washington Street, corner Cherry.

LOCATED IN WARD THREE.

Cambridge Street, 70 feet east of Third.
Gore Street, corner North Third.
Junction Bridge and Gore Streets.
New England Glass Co.'s Yard.
Otis Street, corner Fourth.
Revere Sugar Refinery Yard.
South Sixth Street, corner Spring.
Thorndike Street, corner Third.
Under N. England Glass Co.'s Building.
Under Lowell R. R. Machine Shop.

LOCATED IN WARD FOUR.

Austin Street, corner Douglass.
Brookline Street, corner Auburn.
Junction Western Avenue and Pleasant Street.
Magazine Street, corner William.
Main Street, corner Austin.
Main Street, corner Brookline.
Main Street, 50 feet west of Osborn St.
Main Street, opposite Clark.
Main Street, Junction of Western Avenue and River Street.
Main Street, front of Univer. Church.
Pearl Street, corner Franklin.
Pearl Street, near Jones & Co.'s Factory.
School Street, corner Cherry.
Washington Street, corner Pine.

LOCATED IN WARD FIVE.

In Square, opposite Porter's Hotel.
N. Avenue, near Engine House No. 4.

HYDRANTS.

LOCATED IN WARD ONE.

Appleton Street, corner High.
Ash Street, corner New.
Baldwin Street, corner Baldwin Place.
Banks Street, corner Flagg.
Banks Street, corner Copperthwaite.
Banks Street, corner Crane.
Brattle Street, opposite the estates of Messrs. Longfellow and Hastings.
Brattle Street, corner Ash.
Brattle Street, corner Hilliard.
Brattle Street, corner University Press estate.
Brattle Street, corner Lowell.
Brattle Street, corner Fresh Pond Lane.
Brattle Street, opp. Mt. Auburn Greenhouse.
Brattle Street, front of Mrs. Wyeth's estate.
Brattle Street, near Coolidge Lane.
Brattle Street, corner Willard.
Brattle Street, corner Story.
Brattle Street, corner Channing.
Broadway, junction Cambridge Street.
Broadway, corner Prescott Street.
Broadway, corner Trowbridge Street.
Broadway, corner Quincy Street.
Broadway, corner Ware Street.
Broadway, corner Ellery Street.
Buckingham Street, opposite Stevens's barn.
Cambridge Street, corner Trowbridge.
Cambridge Street, front Scientific Sch.
Cambridge Street, corner Sumner.
Cambridge Street, corner Baldwin.
Chauncy Street, 500 feet from North Avenue.
Church Street, corner Palmer.
Concord Avenue, junction of Waterhouse Street.
Concord Avenue, corner Sparks Street.
Concord Avenue, opposite Craigie Street.
Craigie Street, midway.
Craigie Street, near corner Sparks.
Crane Street, corner De Wolf.
De Wolf Street, near Copperthwaite.
Divinity Avenue, opposite Museum.
Dunster Street, corner South.
Dunster Street, corner Mt. Auburn.
Ellery St., east side, midway between Broadway and Cambridge Street.
Eliot Street, opposite Bennett.
Everett Street, south side, midway between North Ave. and Oxford Street.
Fayerweather Street, corner Brattle.
Fayerweather Street, opp. Reservoir.
Foster Street, corner Brown.
Garden Street, corner Mason.
Garden Street, corner Wallace.
Harvard Street, corner Remington.
Harvard Street, opp. Harvard Block.
Harvard Square, between rails of R. R. track.
Kirkland Street, near Baldwin, south side.
Kirkland Street, corner Trowbridge, south side.
Kirkland Street, corner Irving, south side.
Kirkland Street, corner Sumner, south side.
Kirkland Street, corner Quincy, south side.
Kirkland Street, opp. Memorial Hall.
Lake View Avenue, 500 feet from Brattle Street.
Main Street, junction of Harvard.
Main Street, corner Trowbridge.
Mellen Street, corner Oxford.
Mill Street, corner Charles River.
Mt. Auburn Street, corner Brighton.
Mt. Auburn Street, corner Brewer.
Mt. Auburn Street, opp. McClellan.
Mt. Auburn and Bow Streets.
Mt. Auburn Street, opp. De Wolf.
Mt. Auburn Street, 200 feet west Cemetery gate, inside inclosure.
Mt. Auburn Street, corner Willard.
Mt. Auburn Street, corner Sparks.
Mt. Auburn Street, opp. McDonald's Marble Works.
Mt. Auburn Street, near R. R. Stables, in Belmont.
North Avenue, corner Chauncy Street.
North Avenue, corner Shepard Street.
North Avenue, corner Holmes Place.
North Avenue, corner Jarvis Street.
Oxford Street, near Jarvis.
Oxford Street, corner Everett.
Phillip's Place, corner Berkeley Street.
Prescott Street, corner Harvard.
Putnam Street, corner Western Avenue.
Sparks Street, corner Foster.
Sparks Street, opp. Chas. T. Russell's.

LOCATED IN WARD TWO.

Amory Street, corner Summer.
Antrim Street, near Broadway.
Bigelow Street, midway between Main and Harvard.
Broadway, corner Highland Avenue.
Broadway, junction Main Street.
Broadway, corner Hancock Street.
Broadway, corner Antrim Street.
Broadway, corner Tremont Street.
Broadway, corner Elm Street.
Broadway, corner Dock Street.
Broadway, corner Third Street.
Broadway, corner Dana Street.
Broadway, corner Ellsworth Avenue.
Broadway, corner Fayette Street.
Broadway, corner Amory Street.
Broadway, corner Norfolk Street.
Broadway, corner Boardman Street.
Broadway, junction Hampshire S reet.
Broadway, opp. Thayer's Laboratory.
Broadway, near Broadway House.
Cambridge Street, corner Rideout.
Cambridge Street, corner Norfolk.
Cambridge Street, corner Willow Place.
Cambridge Street, corner Prospect.
Cambridge Street, corner Tremont.
Cambridge Street, opposite Fayette.
Cambridge Street, north side, near junc. of Hampshire and Cambridge.
Cambridge Street, opp. head of Maple Avenue.
Cambridge Street, corner McCabe.
Centre Street, opp. Dana School-house.
Columbia Street, corner Washington.
Columbia Street, corner Lincoln.
Columbia Street, corner Market.
Columbia Street, corner Hampshire.
Columbia Street, corner Harvard.
Davis Street, corner Broadway.
Elm Street, corner Market.
Essex Street, westerly side, midway between Harvard and Austin.
Fayette Street, 500 feet from Broadway.
Harvard Street, corner Pine.
Harvard Street, corner Hancock.
Harvard Street, corner Dana.
Harvard Street, corner Clark.
Harvard Street, corner Moore.
Harvard Street, corner Norfolk.
Houghton Street, corner Bolton, in Somerville.
Hunting Street, 400 ft. from Cambridge.
Inman Street, near Austin.
Inman Street, corner Harvard.
Inman Street, corner Broadway.
Inman Street, corner Summer.
Jefferson Street, corner Rideout.
Main Street, corner Lee.
Main Street, corner Hancock.
Main Street, corner Dock.
Main Street, corner Essex.
Main Street, opposite Pleasant.
Main Street, corner Bigelow.
Main Street, junction Harvard.
Maple Ave., midway between Broadway and Cambridge Street.
Market Street, corner Union.
Moore Street, head of Hastings.
Norfolk Street, corner Hampshire.
Norfolk Street, corner Worcester.
Norfolk Street, head of Washington.
Oak Street, west side, near Somerville line.
Prospect Street, opposite B. Tilton's.
Prospect Street, corner Broadway.
Prospect Street, corner Hampshire.
Prospect Street, corner Main.
Prospect Street, corner Gardner.
South Street, opp. Willow, Somerville.
South Street, corner Gore, Somerville.
Tremont Street, near Wellington's house.
Tremont Street, near Cambridge.
Union Street, corner Hampshire.
Ward Street, corner Horace, Somerville.
Washington Street, corner Clark.
Webster Avenue, corner Elm.
Webster Avenue, corner Bristol.
Webster Avenue, corner Winsor.
Webster Avenue, corner Hampshire.
Webster Avenue, corner Plymouth.
West Boston Bridge.
West Boston Bridge.
Winsor Street, corner Lincoln.
Winsor Street, corner Hampshire.
Winsor Street, corner Washington.

LOCATED IN WARD THREE.

Bridge Street, corner Prison Point.
Bridge Street, corner Short.
Bridge Street, corner Water.
Bridge Street, opp. Wellington's Counting-room.
Bridge Street, opp. Bay State Glass-house.
Bridge Street, north side, opp. Braman, Shaw, and Co's.
Cambridge Street, opposite First.

WARD THREE. — *Continued.*

Cambridge Street, corner Carson.
Cambridge Street, corner Daily's Alley.
Cambridge Street, corner Third.
Cambridge Street, junction Bridge St.
Cambridge Street, corner Sixth.
Charles Street, corner Fourth.
Eighth Street, cor. Cambridge.
Fifth Street, corner Charles.
Fifth Street, corner Spring.
Fifth Street, corner Cambridge.
Fifth Street, corner Gore.
Fourth Street, corner Winter.
Fourth Street, corner Bridge.
Fourth Street, corner Cambridge.
Fourth Street, corner Vine.
Fourth Street, corner Thorndike.
Gore Street, corner Carson.
Gore Street, corner Fourth.
Jefferson Street, corner Warren.
North Street, corner East.
North St. near Glass Co.'s cutting-shop.
Otis Street, corner First.
Otis Street, corner Third.
Otis Street, corner Seventh.
Otis Street, corner Ninth.
Prison Point Street, 50 feet north of Ice Sheds.
Prison Point Street, on R. R. track, 300 feet from street.
Prison Point Street, on R. R. track, 600 feet from street.
Prison Point Street, 400 ft. from Bridge Street.
Second Street, corner Thorndike.
Second Street, corner Otis.
Second Street, corner Cambridge.
Sixth Street, corner Gore.
Spring Street, corner Fourth.
Spring Street, corner Second.
Spring Street, corner Third.
Third Street, corner Winter.
Third Street, corner Vine.
Third Street, near Charles.
Third Street, corner Walker Place.
Thorndike Street, corner Sixth.
Thorndike Street, corner Fifth.
Vine Street, corner Fifth.
Vine Street, corner Sixth.
Water Street, near Sugar-house.

LOCATED IN WARD FOUR.

Blackstone St., west side, 100 ft. from Avenue.
Brookline Street, corner Allston.
Brookline Street, corner Hamilton.
Brookline Street, corner Valentine.
Brookline Street, corner Walnut.
Brookline Street, corner Erie.
Brookline Street, corner Franklin.
Brookline Street, corner Chestnut.
Cherry Street, opposite Eaton.
Columbia Street, corner Austin.
Franklin Street, corner Soden.
Franklin Street, corner Hancock.
Franklin Street, corner Bay.
Franklin Street, near the hill.
Franklin Street, corner Sidney.
Franklin Street, corner Magazine.
Front, junction State Street.
Green Street, corner Bay.
Kinnaird Street, corner Bay.
Kinnaird Street, corner Putnam.
Magazine Street, corner Cottage.
Magazine Street, corner Walnut.
Magazine Street, corner Warland.
Magazine Street, corner Auburn.
Magazine Street, corner Park.
Magazine Street, corner Upton.
Magazine Street, opp. Hamilton.
Magazine Street, corner Florence.
Main Street, corner Columbia.
Main Street, corner Winsor.
Main Street, opp. Brook's Buildings.
Main Street, corner Norfolk.
Main, junction Austin Street.
Main Street, north side, opp. Kennedy's Bakery.
Main Street, corner Washington.
Pearl Street, corner Lake.
Pearl Street, corner Walnut.
Pearl Street, corner Perry.
Pearl Street, corner Cottage.
Pearl Street, corner Auburn.
Pleasant Street, corner Upton.
Pleasant Street, corner Green.
Pleasant Street, corner Franklin.
Pleasant Street, corner Walnut.
Pleasant Street, corner Somerset.
Pleasant Street, corner Park.
Pleasant Street, corner Prince.
Pleasant Street, corner Pleasant Place.
Pleasant Street, corner Chestnut.
Putnam Street, corner Putnam Place.
River Street, corner Franklin.
River Street, opposite Cottage.
River Street, opposite Learned.
River Street, corner Blackstone.
River Street, opposite Cooper's.
School Street, in the elbow.
Sidney Street, corner Allston.
Sidney Street, corner Walnut.
Sidney Street, corner Chestnut.
Soden Street, corner Western Avenue.
Washington Street, near Brewery.
Waverly Street, opposite Willard's.
Western Ave., corner Howard Street.
Western Avenue, corner Kinnaird Street.
Western Avenue, corner Jay Street.

LOCATED IN WARD FIVE.

Arlington Street, 500 ft. from N. Ave.
Beech Street, east side, 20 feet from Orchard Street.
Cedar Street, corner Spruce.
Cedar Street, opposite Norris.
Cedar Street, opposite Green House.
Concord Avenue, corner Madison St.
Concord Avenue, opp. Bond Street.
Concord Avenue, corner Walden.
Crescent Avenue, corner Raymond.
Donnell Street, corner Garden.
Garden Court, corner Dublin Street.
Garden Street, opposite Bond.
Harvey Street, opposite Montgomery.
Hubbard Street, near Walden.
Hubbard Street, corner Raymond.
Lambert Avenue, opp. R. R. office.
Linnæan Street, corner Avon.
Linnæan Street, corner Bowdoin.
Linnæan Street, corner Raymond.
Milk Street, corner White.
North Avenue, near R. R. Bridge.
North Avenue, corner Cogswell Ave.
North Avenue, corner Allen Street.
North Avenue, corner Dover Street.
North Avenue, 300 ft. west of Tannery.
North Avenue, corner Sacramento St.
North Avenue, opp. Linnæan Street.
North Avenue, corner Chester Street.
North Avenue, corner Arlington Street.
North Avenue, corner Rice Street.
North Avenue, corner Cedar Street.
North Avenue, opposite Tannery.
North Avenue, near Walcott Richardson's gate.
North Avenue, corner Beech.
Norton Street, midway.
Orchard Street, opp. Tenney Court.
Oxford Street, corner Forest.
Oxford Street, opposite Eustis Court.
Raymond Street, south side, near Mr. Dresser's estate, two.
Reed Street, 250 ft. from Harvey.
Reed Street, opposite School-house.
Rice Street, opposite L. L. Cushing's.
Roseland Street, corner Frost.
Shepard Street, corner Avon.
Spruce Street, corner Hollis.
Spruce Street, corner Sargent.
Spruce Street, corner Montgomery.
Spruce Street, corner North Avenue.
Spruce Street, opposite School-house.
Tuttle Street, opposite Ladd's barn.
Walden Street, opposite Mead.
Walden Street, corner Hubbard Ave.
Wallace Street, in the elbow.
Washington Avenue, corner Dexter.
Washington Avenue, opposite Paper Street.
Wyeth Street, corner Garden.

Fire Alarm Telegraph.

Telegraph Operator.	*Assistant Operator.*
Thomas J. Leighton.	George J. Blaisdell.

Battery Station: Church Street.

Location of Signal Boxes.

No. 2. Bridge Street, corner of Prison Point.
6. Third Street, corner of Broadway.
8. Third Street, corner of Thorndike.
9. Cambridge Street, Beal & Hooper's Building.
12. Winter Street, corner of Third.
13. Fourth Street, No. 3 Engine House.
14. Sixth Street, corner of Cambridge.
24. Brookline Street, corner of Valentine.
25. Main and Front Streets (junction).

26. Main Street, corner of Osborn.
27. Clark Street, corner of Harvard.
28. Broadway, opposite Page's Box Factory.
31. Cambridge Street, corner of Rideout.
32. Cambridge Street, corner of Webster Avenue.
34. Columbia Street, corner of Hampshire.
35. Harvard Street, corner of Norfolk.
36. Main Street, corner of Western Avenue.
37. Pleasant Street, corner of River (junction).
38. Magazine Street, corner of Lake.
41. Pleasant Street, corner of Short.
42. Blackstone Street, opposite Riverside Press.
46. Main Street, corner of Hancock.
47. Broadway, corner of Antrim.
48. Cambridge Street, corner of Hampshire (junction).
51. Broadway, corner of Ellery.
52. Mt. Auburn & Main Streets (junction).
53. Mt. Auburn Street, corner of Linden.
54. Cambridge Street, corner of Sumner.
59. Harvard Square, Ramsay's Apothecary.
62. Mt. Auburn Street, corner of Hilliard.
63. Brattle Street, corner of Mason (junction).
64. Garden Street, corner of Chauncy.
65. North Avenue, corner of Shepard.
68. North Avenue, near Railroad Bridge.
69. North Avenue, No. 4 Engine House.
71. North Avenue, near Tannery.
72. Cedar Street, Hotel Building.
78. Concord Avenue, corner of Wyeth Street.
79. Brattle Street, corner of Sparks.
82. Brattle Street, corner of Elmwood Avenue.

Location of Bell Strikers.

Unitarian Church, Harvard Square	Ward One.
Methodist Church, Harvard Street	„ Two.
Unitarian Church, Third Street	„ Three.
Baptist Church, North Avenue	„ Five.

ENGINEERS OF THE FIRE DEPARTMENT.

To afford information to members of this Department, and to provide a table of reference for the public, great care has been exercised to obtain a complete list of the names of persons who have served as engineers of the Cambridge Fire Department since the organization was formed. In order that the name of every person may be given who served in the capacity of engineer, the Town and City Records have been carefully examined, to secure the information herewith presented.

An Act of the Legislature, passed March 17, 1832, establishing a Fire Department in the Town of Cambridge, was accepted by the Town; and at a meeting of the Selectmen, held in the month of May of the same year, the first appointment of engineers was made, since which time such officers have been appointed annually.

A table is appended, arranged by years, by which it will be seen that for fourteen years in succession the Board of Engineers consisted of a chief and eight assistants. The reader will notice that, in some instances, more than eight names appear, and in other cases less than eight, that is, dating from 1832 to 1846. This may be accounted for by resignations and the appointment of other persons to fill vacancies for the remainder of the year.

June 30, 1846, the Board of Mayor and Aldermen of the first City Government adopted an order that the Board of Engineers should consist of a chief and four assistants; and since that time, a period of twenty-seven years, the rule then established has been observed.

NAMES OF ENGINEERS.

1832.		1833.		1834.	
Luther Brooks,	Chief.	Luther Brooks,	Chief.	Luther Brooks,	Chief.
Abraham Edwards,	Assistant.	Abel Willard,	Assistant.	Abel Willard,	Assistant.
Philemon R. Russell, Jr.,	,,	John Chamberlin,	,,	John Chamberlin,	,,
Abel Willard,	,,	James Luke,	,,	James Luke,	,,
Charles Haynes,	,,	Walter R. Mason,	,,	Walter R. Mason,	,,
John Chamberlin,	,,	Joseph Jennings,	,,	Joseph Jennings,	,,
James Luke,	,,	William Hunnewell,	,,	William Hunnewell,	,,
Joseph Osborn,	,,	Freeman Brigham,	,,	Freeman Brigham,	,,
Daniel Major,	,,	Charles Haynes,	,,	Ebenezer Kimball,	,,

1835.

Luther Brooks,	Chief.
Abel Willard,	Assistant.
Walter R. Mason,	,,
Joseph Jennings,	,,
William Hunnewell,	,,
Freeman Brigham,	,,
Ebenezer Kimball,	,,
William Saunders,	,,
John L. Hobbs,	,,

1836.

Abel Willard,	Chief.
William Hunnewell,	Assistant.
Joseph Jennings,	,,
John L. Hobbs,	,,
William Saunders,	,,
Ebenezer Kimball,	,,
Samuel Slocomb,	,,
Abraham Munroe,	,,
Luther Brooks,	,,
John Kendall,	,,

1837.

Abel Willard,	Chief.
Luther Brooks,	Assistant.
Bowman W. Dennis,	,,
John L. Hobbs,	,,
Ebenezer Francis,	,,
Henry V. Spurr,	,,
Walter M. Allen,	,,
Samuel Slocomb,	,,
James Luke,	,,

1838.

Abel Willard,	Chief.
Luther Brooks,	Assistant.
John L. Hobbs,	,,
James Luke,	,,
Dexter Fairbank,	,,
Ebenezer Tucker,	,,
Charles R. Metcalf,	,,
Walter M. Allen,	,,
Samuel Slocomb,	,,

1839.

John L. Hobbs,	Chief.
Thomas Cassidy,	Assistant.
Luther Brooks,	,,
Edward T. Whitney,	,,
Samuel Sanders,	,,
Dexter Fairbank,	,,
Nathaniel Mulliken,	,,
Walter M. Allen,	,,
Samuel Slocomb,	,,
Benjamin Cook, Jr.,	,,
Bowman W. Dennis,	,,

1840.

John L. Hobbs,	Chief.
Thomas Cassidy,	Assistant.
Benjamin Cook, Jr.,	,,
Walter M. Allen,	,,
Samuel Sanders,	,,
Nathaniel Mulliken,	,,
Henry Dillingham,	,,
Charles Haynes,	,,
Daniel H. Southwick,	,,

1841.

John L. Hobbs,	Chief.
Leonard F. Markham,	Assis't.
Benjamin Cook, Jr.,	,,
Benjamin Sawtell,	,,
Samuel Sanders,	Assistant.
Nathaniel Mulliken,	,,
Henry Dillingham,	,,
Charles Whitton,	,,
Daniel H. Southwick,	,,

1842.

John L. Hobbs,	Chief.
Lewis Hall,	Assistant.
Nathaniel Jackson,	,,
Samuel Sanders,	,,
Leonard F. Markham,	,,
Thomas G. Hovey,	,,
Henry Dillingham,	,,
Walter M. Allen,	,,
Otis Danforth,	,,

1843.

Samuel Sanders,	Chief.
John L. Hobbs,	Assistant.
Lewis Hall,	,,
Nathaniel Jackson,	,,
Thomas G. Hovey,	,,
Leonard F. Markham,	,,
Henry Dillingham,	,,
John Chamberlin, Jr.,	,,
Philemon R. Russell,	,,

1844.

Samuel Sanders,	Chief.
John L. Hobbs,	Assistant.
Lewis Hall,	,,
Thomas G. Hovey,	,,
Lloyd Crossman,	,,
Simon P. Clark,	,,
John Chamberlin, Jr.,	,,
Francis L. Chapman,	,,
Philemon R. Russell,	,,

1845.

Samuel Sanders,	Chief.
Lewis Hall,	Assistant.
Lloyd Crossman,	,,
John Chamberlin, Jr.,	,,
Francis L. Chapman,	,,
Simon P. Clark,	,,
Philemon R. Russell,	,,
Hosea Jewell,	,,
Lawrence B. Watts,	,,

1846.

Samuel Sanders,	Chief.
Francis L. Chapman,	Assis't.
Lloyd Crossman,	,,
Josiah D. Hovey,	,,
Ozias Clark,	,,

1847.

Samuel Sanders,	Chief.
Francis L. Chapman,	Assis't.
Josiah D. Hovey,	,,
Ozias Clark,	,,
Thomas G. Hovey,	,,
William Twist,	,,
Lawrence B. Watts,	,,

1848.

Samuel Sanders,	Chief.
Francis L. Chapman,	Assis't.
Thomas G. Hovey,	,,
William Twist,	,,
Lawrence B. Watts,	,,

1849.

Samuel Sanders,	Chief.
Francis L. Chapman,	Assis't.
Thomas G. Hovey,	,,
William Twist,	,,
Lawrence B. Watts,	,,
Simon P. Clark,	,,
John Lovell,	,,
George B. Eaton,	,,

1850.

Simon P. Clark,	Chief.
George B. Eaton,	Assistant.
Andrew S. Waitt,	,,
Increase S. Hawes,	,,

1851.

Simon P. Clark,	Chief.
George B. Eaton,	Assistant.
Increase S. Hawes,	,,
Martin L. Smith,	,,
Ozias Clark,	,,

1852.

George B. Eaton,	Chief.
Martin L. Smith,	Assistant.
Charles B. Stevens,	,,
Hosea Jewell,	,,
John Chamberlin, Jr.,	,,

1853.

Charles B. Stevens,	Chief.
Hosea Jewell,	Assistant.
John Chamberlin, Jr.,	,,
Dalphon Osborn,	,,
Willard E. Simpson,	,,

1854.

Charles B. Stevens,	Chief.
Hosea Jewell,	Assistant.
Dalphon Osborn,	,,
George H. Fowler,	,,
John A. Belcher,	,,
John B. Fraser,	,,

1855.

Charles B. Stevens,	Chief.
George B. Eaton,	,,
Hosea Jewell,	Assistant.
Dalphon Osborn,	,,
John A. Belcher,	,,
George H. Fowler,	,,
Francis L. Chapman,	,,
Martin L. Smith,	,,
John B. Fraser,	,,
Mason Davis,	,,
William Bates, Jr.,	,,
Charles H. Blake,	,,

1856.

Charles B. Stevens,	Chief.
Mason Davis,	Assistant.
William Bates, Jr.,	,,
Charles H. Blake,	,,
Daniel O. Gunnison,	,,
Benjamin F. Berry,	,,

1857.

Charles B. Stevens,	Chief.
Mason Davis,	,,
Mason Davis,	Assistant.
Charles H. Blake,	,,

Daniel O. Gunnison, Assistant.
Benjamin F. Berry, ,,
Charles B. Stevens, ,,
George H. Fowler, ,,
Andrew J. Jones, ,,

1858.

George B. Eaton, Chief.
Charles B. Stevens, Assistant.
George H. Fowler, ,,
Andrew J. Jones, ,,
William G. Tarbell, ,,

1859.

George B. Eaton, Chief.
Charles B. Stevens, Assistant.
George H. Fowler, ,,
Andrew J. Jones, ,,
Charles L. Russell, ,,

1860.

George B. Eaton, Chief.
Charles B. Stevens, Assistant.
George H. Fowler, ,,
Andrew J. Jones, ,,
Charles L. Russell, ,,
George H. Copeland, ,,
Orrin G. Jones, ,,

1861.

George B. Eaton, Chief.
Charles B. Stevens, Assistant.
Charles L. Russell, ,,
George H. Copeland, ,,
Orrin G. Jones, ,,

1862.

George B. Eaton, Chief.
Charles B. Stevens, Assistant.
Charles L. Russell, ,,
George H. Copeland, ,,
Orrin G. Jones, ,,
Leander Greely, Assistant.
Samuel M. Frye, ,,
John G. Hopkins, ,,

1863.

George B. Eaton, Chief.
Orrin G. Jones, Assistant.
Leander Greely, ,,
Samuel M. Frye, ,,
John G. Hopkins, ,,

1864.

George B. Eaton, Chief.
Orrin G. Jones, Assistant.
Leander Greely, ,,
Samuel M. Frye, ,,
John G. Hopkins, ,,

1865.

George B. Eaton, Chief.
Samuel M. Frye, Assistant.
Theodore Collamore, ,,
Thomas J. Casey, ,,

1866.

George B. Eaton, Chief.
Samuel M. Frye, Assistant.
Theodore Collamore, ,,
Thomas J. Casey, ,,
George O. Rollins, ,,

1867.

George B. Eaton, Chief.
Samuel M. Frye, Assistant.
Theodore Collamore, ,,
Thomas J. Casey, ,,
Jacob A. Holt, ,,

1868.

George B. Eaton, Chief.
Thomas J. Casey, Assistant.
Jacob A. Holt, Assistant.
Joseph H. Marvin, ,,
Patrick H. Raymond, ,,

1869.

George B. Eaton, Chief.
Thomas J. Casey, Assistant.
Jacob A. Holt, ,,
Joseph H. Marvin, ,,
Patrick H. Raymond, ,,

1870.

George B. Eaton, Chief.
Thomas J. Casey, Assistant.
Joseph H. Marvin, ,,
Patrick H. Raymond, ,,
Edward F. Belcher, ,,

1871.

Patrick H. Raymond, Chief.
Thomas J. Casey, Assistant.
Joseph H. Marvin, ,,
Albert Norris, ,,
Edward F. Belcher, ,,

1872.

Patrick H. Raymond, Chief.
Thomas J. Casey, Assistant.
Joseph H. Marvin, ,,
Albert Norris, ,,
Edward F. Belcher, ,,
Daniel O'Connell, ,,

1873.

Patrick H. Raymond, Chief.
Thomas J. Casey, Assistant.
Albert Norris, ,,
Edward F. Belcher, ,,
Daniel O'Connell, ,,
John P. Farmer, Jr., ,,

REPORT

OF

GEORGE L. CADE,

SUPERINTENDENT OF STREETS.

City of Cambridge, *December* 18, 1872.

To the Honorable City Council: —

The undersigned asks leave to submit for your consideration his Ninth Annual

REPORT.

Streets and Paving.

The Appropriation for Streets and Paving for the financial year ending November 30, 1872, was	$150,000.00
Amount transferred from Bridges	3,300.00
	$153,300.00
Amount expended	153,242.35
Balance unexpended	$57.65
Amount received and paid to Treasurer	$1,146.27

The Appropriation for this Department has been expended as follows: —

For labor	$37,937.82
,, ,, with teams	16,008.40
,, brick, paving, edging-stone, &c.	67,236.78
,, horse-shoeing	598.46
,, paving and field-stone	10,281.42
,, hay and grain	4,083.89
,, lumber	898.72
,, gravel and sand	6,949.61
Amount carried forward	$143,995.10

Amount brought forward	$143,995.10
For horses, harnesses, and repairs	3,420.84
,, shovels, picks, hardware, &c.	787.86
,, incidentals, street-signs, Superintendent's salary, &c.	4,780.17
,, castings and repairs on stone-crusher	258.38
	$153,242.35

There have been thirty-three orders passed during the present season for the laying of sidewalks; and with the exception of an order for Forest Street, they have all been completed at the following cost, including grading: —

On the south side of Austin Street, from Main to Inman	$2,055.99
At the junction of Concord Avenue and Garden Street	450.00
On the west side of Lee Street, from Main to Harvard	1,389.18
,, the east side of Lee Street, from Main to Harvard	673.48
,, Warland Street, from Magazine to Pleasant . .	2,049.18
,, Hancock ,, ,, Main ,, Harvard . .	2,477.51
,, Washington ,, ,, Norfolk ,, Columbia .	1,373.11
,, Avon ,, ,, Shepard ,, Linnæan .	2,025.70
,, Mason ,, ,, Garden ,, Brattle . .	1,130.88
,, Beech and Orchard Streets	398.55
,, Roseland Street to the Somerville line . . .	948.44
,, North Avenue and Garden Street, along the Cemetery	3,559.55
,, North Avenue, junction with Milk Street . .	1,015.52
,, ,, ,, westerly side to Harrison Court .	5,549.63
,, east side Fayette Street	2,955.04
,, Maple Avenue, from Cambridge to Broadway .	2,286.07
,, Western ,, $231.00; Vine Street, $1,473.74	1,704.74
,, Temple Street, from Main to Austin	1,930.03
,, Fourth ,, ,, Spring to Vine	879.57
Amount carried forward	$34,852.17

Amount brought forward	$34,852.17
On Spring Street, from Fifth to Sixth	1,202.84
,, Bigelow ,, ,, Main ,, Harvard . . .	2,605.89
,, Norfolk ,, ,, ,, ,, Hampshire . .	10,121.22
,, Essex ,, ,, ,, ,, Harvard . . .	2,111.92
,, Sixth ,, ,, Thorndike to Spring . .	923.33
,, Fourth and Thorndike Streets	146.47
,, Broadway, corner of Inman Street	967.08
,, Brookline Street, corner of Pilgrim	478.50
,, Third Street, from Cambridge to Otis	173.45
,, Brattle ,, ,, Brighton Street, westerly .	200.00
,, east side of Columbia Street, front of School-house	253.00
,, Mount Auburn Street, three orders	1,788.41
Total expenditure for sidewalks and grading .	$55,824.28

In my opinion, public necessity and convenience require that a brick sidewalk be laid upon the north-westerly side of River Street; and the street should be widened upon that side, to meet the improvement made by the Town of Brighton. They are ready and willing to meet Cambridge in making the necessary widening of the Bridge.

The streets of Cambridge are in good condition at the present time, and will, perhaps, compare favorably with any in the State, if the location, and the heavy travel to which they are subjected, are considered. I would respectfully call your attention to the condition of Brighton Street, Ward One, on the lines of which radical changes are absolutely required, to make the street really safe and convenient. During the year there have been 44,791 yards of paving laid, and 33,020 feet of edgestone set. There will be due the City for assessments for sidewalks completed the present year, $25,099.44. The following streets have been graded during the present year: —

In District One.

Appian Way and Avon Street, their whole length.
Appleton Street, partially.
Beech ,, ,,

Brattle Street, its whole length.
Brighton ,, ,, ,, ,,
Broadway, partially.
Buckingham Street, partially.
Cambridge ,, ,,
Chestnut ,, ,,
Concord Avenue ,,
Craigie Street ,,
Dublin ,, ,,
Dunster ,, ,,
Follen ,, ,,
Forest ,, ,,
Frost ,, its whole length.
Garden ,, ,, ,, ,,
Harvard ,, partially.
James ,, ,,
Linnæan ,, ,,
Main ,, ,,
Mason ,, its whole length.
Mount Auburn Street, partially.
North Avenue, its whole length.
Oxford Street, partially.
Putnam ,, its whole length.
Roseland ,, ,, ,, ,,
Raymond ,, partially.
Sacramento ,, ,,
Sparks ,, ,,
Spruce ,, ,,
Walden ,, ,,
Waterhouse ,, ,,

In District Two.

Allston Street, partially.
Austin ,, ,,
Bigelow ,, its whole length.
Blackstone ,, partially.
Court ,, its whole length.
Davis ,, partially.

Douglass Street, partially.
Essex ,, its whole length.
Fayette ,, ,, ,, ,,
Franklin ,, partially.
Green ,, ,,
Hamilton ,, ,,
Hampshire ,, ,,
Hancock ,, ,,
Harvard ,, ,,
Highland Avenue, ,,
Lee Street, its whole length.
Magazine Street, partially.
Main ,, ,,
Maple Avenue, its whole length.
Market Street, partially.
Norfolk ,, ,,
Pearl ,, ,,
Pine ,, ,,
Pleasant ,, ,,
River ,, ,,
School ,, ,,
Temple ,, its whole length.
Tremont ,, partially.
Walnut ,, ,,
Warland ,, its whole length.
Washington Street, partially.
Western Avenue, ,,

In District Three.

Bridge Street, partially.
Cambridge ,, ,,
First ,, its whole length.
Fourth ,, partially.
Prison Point Bridge and Second Streets, their whole length.
Gore and Otis Streets, partially.
Sixth, Third, and Thorndike Streets, partially.
Vine Street, from Third to Fourth.

The following streets have been laid out and established, widened and extended, &c. : —

Temple Street, widened and established, from Main to Austin.
Frost ,, laid out and established, from Forest to Roseland.
Oxford ,, laid out and established, from Everett Street to the Somerville line.

Forest Street, laid out and established, from North Avenue to the Somerville line.

Portland Street, laid out and established, from Main to Cambridge Street.

School Street, widened, laid out, and established, from Moore to Portland.

Brewery Street, widened, laid out, and established, from Main Street to Broadway.

Moore Street, extended, laid out, and established, from Main to Washington.

Highland Avenue, laid out and established, from Broadway to Cambridge.

Charles River Street, laid out and established, from Mount Auburn to Dyke Street.

Douglass Street, laid out and established, from Main to Austin.

Dublin Street, widened, laid out, and established, from Spruce Street to Fitchburg Railroad.

Dunster Street, widened from Winthrop Street north to land of William Wright.

Main Street, widened, laid out, and established, from Temple Street north-westerly.

Sixth Street, laid out and established, from Harvard Street to Broad Canal.

Trowbridge Street, laid out and established, from Harvard to Main.

Washington Street, widened from Main to Moore.

I would again call your attention to the necessity of paving Main Street, from the "Lower Port" to Prospect Street, with square block paving. This would unquestionably result in a saving of money in repairs. The cost of paving this portion of Main Street I have estimated to be about $100,000.

I would respectfully ask that some action be taken to carry out the recommendations of a Committee of the City Council for furnishing material for grading streets. Additional facilities are required in the Street Department for the breaking of stone: a new engine and stone-crusher are very much needed. It is impossible with a single machine to furnish a sufficient quantity of broken stone for use.

The regular force employed by the City in the Street Department at the present time is thirty-eight men and twenty-one horses. All the men are employed by the month, with but one exception.

An appropriation of not less than $200,000 will, in my opinion, be required for streets and paving for 1873.

Schedule of Personal Property belonging to the Street Department.

Nineteen horses	$8,000.00
Sixteen cart harnesses	640.00
Ten carts	650.00
Two express wagons and harnesses	350.00
One wagon and harness	300.00
One set of runners	75.00
One plough	5.00
Utensils for work on streets, &c.	200.00
Stable furniture	50.00
Stone-crusher and steam-engine	2,000.00
Nine snow-ploughs	180.00
Three stone-rollers	950.00
	$13,400.00

Bridges.

The appropriation for bridges for the financial year ending November 30, 1872, was	$10,000.00
Amount expended	4,715.65
Balance unexpended	$5,284.35

The several bridges of the city are in good condition, with the exception of Prison Point and Court Street Bridges, both of which

will probably need extensive repairs the coming season, the State having already ordered a new draw to be constructed on Prison Point Bridge, the expense of which will have to be paid jointly by Cambridge and Charlestown.

An appropriation of $10,000 will be required for bridges, to meet ordinary repairs for 1873.

Respectfully submitted.

GEORGE L. CADE,

Superintendent of Streets.

REPORT

OF

THE CHIEF OF POLICE.

OFFICE OF CHIEF OF POLICE,
CAMBRIDGE, *Dec.* 1872.

To the Honorable City Council of Cambridge:—

GENTLEMEN, — I have the honor to submit my Annual Report of the doings of the Police Department for the year ending November 30, 1872.

NUMBER OF ARRESTS, AND THE CAUSES.

Whole number		1,687
Males	1,517	
Females	170	
Residents	1,319	
Non-residents	368	
Adults	1,422	
Minors	265	

Food and lodgings have been furnished at the several station-houses to 1,441 persons; of whom 1,286 were males, and 155 were females.

Offences.

Abandoning infant	2	Cruelty to animals	6
Abduction	1	Conspiracy to defraud	2
Attempt to rescue	2	Common drunkards	27
Adultery	1	Drunkenness	741
Arson	2	Disturbing peace	79
Assault and battery	210	Disturbing public meeting	4
Attempt at rape	1	Disturbing public worship	1
Attempted larceny	1	Escaped prisoners	9
Assault on officers	12	Embezzlement	2
Bastardy	8	Felonious assault	5
Bigamy	1	False pretences	3
Breaking and entering	25	Forgery	2

Homicide	1	Refusing assistance to officers	3
Habitual absentees from school	21	Refusing to pay fare	1
Insanity	19	Selling liquor	4
Keeping unlicensed dogs	9	Selling adulterated milk	6
Larceny	180	Stealing ride	1
Malicious mischief	58	Surety of peace	26
Misdemeanor	2	Suspicious persons	6
Mayhem	1	Stubborn children	6
Obstructing horse-cars	3	Surrendered by bail	2
Peddling without license	5	Suspicion of larceny	6
Polygamy	1	Vagrants	18
Robbery	6	Violation of City ordinances	91
Runaway	1	Violation of Lord's day	59
Receiving stolen goods	2	Wilful trespass	2

During the past year the force comprised forty-seven officers, whose duty has been divided; viz., one chief, three day captains, one night captain, eleven day officers, five truant officers, three night-station officers, and twenty-three night-patrol officers.

There are six police-stations, situated as follows: two in the first district, three in the second district, and one in the third district; all in good condition, except Station No. 2, which is in the basement of the City Hall; and, in place of this, a lot of land has been purchased, and plans have been prepared, for the erection of a building during the ensuing year, for the better accommodation of all interested.

During the year, one of our number, Mr. Charles J. Marvin, a young man in the prime of life, of good moral character and habits, an efficient and gentlemanly officer, was suddenly cut off, in the fulness of the hopes and prospects of early manhood, by death.

I am glad to be able to report that the city enjoys peace and tranquillity, and the laws are respected and obeyed to a degree not surpassed in any period in her history. The number of arrests was 148 less than the preceding year. This is remarkable, because the population has steadily increased; and the diminution of arrests against the increase of population notably exhibits the peace and order enjoyed by our citizens.

No changes have been made during the year. The general condition of the force is, and has been for several years, steadily improving; and I am satisfied that it is now superior to what it has been since its organization.

The requisites of a good policeman are of such a peculiar nature that is impossible for some men — no matter how good their intentions, or how hard they may try — to become good officers; and, as the only way to judge of their respective merits is by trial, it becomes an impossibility for us always to have the right man in the right place.

The great difficulty is in finding a body of fifty men, even, taken from the different classes in the community, who, when placed on duty, exposed to every vice and temptation that exists in a populous city, will, in all respects, behave with propriety. That intemperate or irregular habits, insubordination, incompatibility of temper and character, and other general unfitness, should be discovered, must be apparent to every thinking man.

There are many occasions on which the humane and faithful officer has, from the nature of his labors, unequalled opportunities of relieving suffering and misery, and of affording the wealthy opportunities of bestowing relief and sympathy. Cases often occur, I am happy to say, when the officers, prompted by the kindest motives, seek out objects of charity, and afford that relief, by the aid of the benevolent, without which great suffering and misery would follow.

In the performance of my duty as chief, I have been ably supported by each and every one of the officers placed under me. Thus supported, I have endeavored to perform my whole duty to the best of my abilities, and, I trust, to the general satisfaction of the community.

Respectfully submitted.

FORDYCE M. STIMSON,

Chief of Police.

REPORT

OF

ROLAND LITCHFIELD,

SUPERINTENDENT OF LAMPS.

To the Honorable City Council of Cambridge: —

GENTLEMEN, — I hereby submit my Annual Report in relation to the Lamp Department.

The number of Street Lamps is as follows: —

District One,	249 gas,	4 fluid.	
District Two,	251 gas,	18 fluid.	
District Three,	83 gas,	22 fluid.	
	583 gas,	44 fluid.	Total . . 627

Twenty-eight of the above have been added during the year.

The following is an exhibit of the expenses of the Street Lamps for the year.

For gas	$8,397.31
Care of lamps and lighting	3,186.10
Post, lanterns, and repairs	1,592.26
Fluid, matches, &c.	505.25
Superintendent of Lamps	400.00
Other expenses	65.77
	$14,146.69

The average cost of each lamp burning gas through the year was six cents per night, and the average cost of each lamp burning fluid for the same time was one cent and eight mills per night.

Five men are employed to light the lamps and keep the lanterns clean, and they are paid fifty cents per month for each lamp.

Respectfully submitted.

ROLAND LITCHFIELD,

Superintendent of Lamps.

CAMBRIDGE, *Dec.* 1, 1872.

REPORT

OF

JOSIAH G. CHASE,

CITY ENGINEER.

OFFICE OF THE CITY ENGINEER, CITY HALL,
CAMBRIDGE, *Dec.* 18, 1872.

To the Honorable the City Council: —

GENTLEMEN, — Herewith, the City Engineer presents his Report for the year ending November 30, 1872, as required by the eighth section of the ordinance relating to his Department.

SEWERS.

The construction of Sewers the past year has been as follows: —

AUBURN STREET. — A sewer has been laid, from Pearl Street to near Magazine Street, of 12-inch round cement pipe. Length, 371.2 feet. Cost, $477.20.

BROADWAY BLOCK. — In compliance with an order passed for the abatement of a nuisance existing in said block, a sewer, of 12-inch round cement pipe, was built in rear of the same, with connecting branches, cesspools, &c. Length of 12-inch sewer, 81 feet. Whole cost, $560.79.

CAMBRIDGE STREET. — Described as part of the Ninth Street sewer.

CLARK STREET. — A sewer has been built, from Broadway to near Harvard Street, of 12-inch round cement pipe. Length, 233 feet. Cost, $295.65.

CULVERTS UNDER BOSTON & ALBANY BRANCH RAILROAD. — In obedience to directions of the Joint Standing Committee on Sewers and Drains, culverts of various dimensions have been placed

in the several bridges under said railroad south of Main Street; and by agreement with the Vice-President of said railroad, the spaces occupied by the several bridges have been filled and made solid by, and at the expense of, said railroad company. Each culvert contains a tide-gate, thereby excluding tide-waters from the marsh lands lying north-westerly of said railroad track. Total length of culverts, 230 feet; which, with four tide-gates, cost $1,094.14.

Farwell Place. — An extension of the sewer from Brattle Street has been made, of 12-inch round cement pipe. Length, 333 feet. Cost, $423.

Franklin Street. — An extension has been made westerly from the end of the old drain west of Bay Street, of 12-inch round cement pipe. Length, 214 feet. Cost, $274.10. (Paid from appropriation for incidental expenses.)

First Street. — Described as part of the Thorndike Street sewer.

Follen Street. — From Garden Street north-easterly, and from Waterhouse Street northerly, two sewers have been laid, both of 12-inch round cement pipe. Total length, 668 feet. Cost, $1,093.60.

Forest Street. — A branch of the Oxford Street sewer, and hereafter described.

Frost Street. — Described as part of the Oxford Street sewer.

Green Street. — From Sidney Street to near Brookline Street, a sewer has been laid with 246 feet of 15-inch round cement pipe and 195 feet of 12-inch round cement pipe. Total length, 441 feet. Cost, $670.50.

Harvard Street. — This sewer, referred to in my former Reports, has been ordered to be built from Columbia Street to the junction of Main Street, thence through the extension of Sixth Street as laid out to Broad Canal. Its construction is under contract with Mr. Stephen H. Tarbell, and has, in part only, been completed. Five hundred feet in length have been built in Harvard Street, and about three hundred feet in said Sixth Street, with gate-chamber and tide-gates near Broad Canal. Work was suspended in the early part of this month, to be resumed in the coming spring, and, upon its completion, a description in detail will be

presented. A payment of $6,000 has been made on said contract, and charged to the appropriation for improvement of the Washington Street district.

Marsh Drain. — A wooden box sewer, 20″ × 20″ inside, was extended along the easterly location of the Boston & Albany Branch Railroad south of Cambridge Street, to secure drainage, temporarily, for that portion of East Cambridge which had, till the construction of the Ninth Street sewer, been provided with drainage through the ditches (now filled) within the location lines of said railroad. Several hundred feet of new ditching were opened for temporary purposes. Length of drain, 58 feet. Cost, $151.45.

Ninth and Cambridge Streets. — From Broad Canal to Potter Street, 214.85 feet in length are built of wood, 36″ × 48″ inside. At the intersection of Potter Street with Ninth Street, is a gate-chamber built of brick, containing a double set of perfect-acting tide-gates, and thence, through Ninth Street to man-hole at Cambridge Street, the sewer is built of a double ring of common brick, resting upon a cast or moulded cement invert made for this purpose. Length, 2,233¼ feet, and size, 5′ 3″ × 4′ 3″ interior dimensions. From the junction of Ninth Street the sewer extends westerly in Cambridge Street, 235.4 feet to the man-hole previously constructed for the sewer which had its outlet in Miller's River. Nine man-holes and dirt-catchers, with one catch-basin, were built in connection with this sewer, and about one hundred intersecting pipe inlets, of from 8 to 10 inches diameter, were inserted in the walls of the arch, distributed throughout its length. Ninety feet in length of wooden box drain were also built, 24″ × 24″ inside, to connect the Spring Street sewer with this outlet or trunk sewer. Total length, 2,773½ feet. Total cost, $27,084.49. Messrs. Paul & Roberts were the contractors.

Otis Street. — An old decayed and obstructed wooden drain in said street, from Fifth Street west, has been taken up, and a 15-inch diameter cement pipe substituted therefor. Length, 190 feet. Cost, $313.50.

Oxford Street and Branches. — In Oxford Street a sewer has been laid from Sacramento Street to Forest Street, and through Forest Street, to intercept the North Avenue sewer, 1,816 feet in length, of 20-inch cement pipe, oval or egg-shaped. In Frost

Street, from Forest Street to Roseland Street, 537 feet of 15-inch round cement pipe have been laid; and in Roseland Street, east from Frost Street to near the city line, and west from Frost Street to near North Avenue, 423 feet of 12-inch round cement pipe. Also, 30 feet of 9-inch cement pipe were used to connect and preserve intact an old stone drain in Harris Street. Four man-holes and fourteen catch-basins have been built in connection with said sewers, and branch inlets provided for house and lot drainage. Total length of sewers, 2,796 feet. Cost, $8,397.40. Messrs. Day & Collins were the contractors.

Pearl Street. — The sewer across marsh land to man-hole and tide-gate at upland is of wood, 30″ × 36″ inside, and 808.37 feet in length. Thence to Hamilton Street, where it intercepts the old drain and diverts its drainage through the new outlet, it is built of a single ring of brick, 32″ × 36″ inside diameter, and 1,688.42 feet in length. Six man-holes, another tide-gate in man-hole at Chestnut Street, and twelve catch-basins, have been built in connection with said sewer, and forty-four inlets for house drainage inserted in its walls at required points. Total length, 2,532.79 feet. Cost, $13,509.18. Mr. Samuel Palmer was the contractor.

Pleasant Street. — This sewer is in process of construction, as ordered, from Charles River to River Street. It has been completed from the river across the marsh, resting upon pile foundation, and is of wood, 40″ × 36″ inside, and 546½ feet in length. From this point it is built of a single ring of brick, 32″ × 36″ in the clear; and is completed to Fremont Street, where it is designed to receive drainage at some future time from other directions. Length of brick, from marsh northerly, 1,227½ feet; and total length completed, 1,774 feet. South of Fremont Street, its construction also includes two tide-gates, man-holes, catch-basins, connecting inlets, &c.; and from this point to its designed terminus it is to be built of cement pipe of different sizes, and its completion is anticipated during the present month. A contract was executed for the building of this sewer with Mr. Samuel Palmer, who assigned it to Messrs. Paul & Roberts, and they are now executing the work. A payment of $5,000 has been made upon the same.

Putnam Street. — From Mount Auburn Street sewer south,

271¼ feet of 15-inch round cement pipe, and 360½ feet of 12-inch round cement pipe have been laid, with three catch-basins, and connecting inlets for all purposes. Total length of sewer, 630¾ feet. Cost, $1,101.97. Built by Mr. Samuel Palmer.

Thorndike Street. — The extension to man-hole at intersection with First Street is built of wood, 20″ × 24″ in the clear, and 139 feet in length. In First Street, north from man-hole 10 feet, and south from man-hole 128 feet, are built of wood, 36″ × 36″ in the clear, resting upon piles, and terminating outside a bulkhead constructed for solid filling. Total length, 277 feet. Cost, $1,172.78.

Warland Street. — From Magazine to near Pleasant Street, is laid a 12-inch round cement pipe, with two catch-basins. Length, 451 feet. Cost, $765.75.

Webster Street. — From Magazine Street to near Pleasant Street, is laid a 12-inch round cement pipe with one catch-basin. Length, 426½ feet. Cost, $611.33.

Winsor Street. — From Market Street sewer north, is laid a 12-inch round cement pipe with inlets. Length, 230 feet. Cost, $264.50.

Wright Street. — From Bowdoin Street to near Norton Street, is laid a 12-inch round cement pipe, with inlets. Length, 439 feet. Cost, $559.95.

Plans and profiles of all the above sewers have been prepared in this office.

Two hundred and ninety-nine permits have been granted during the year, to as many persons, to enter private drains into common sewers, as provided by ordinance relating thereto. Permits have also been granted without charge, subject to future determination by the Mayor and Aldermen, to sundry persons to enter street drains into common sewers; and they have been constructed at private expense, under direction of the City Engineer, as follows: —

In Langdon Street, 335 feet in length of 12-inch round cement pipe; in Lakeview Avenue, 1,135 feet in length of 15-inch diameter brick-barrel drain; in Tufts Street, 433 feet of 12-inch round cement pipe; in Chestnut Street, 428 feet of 12-inch round cement pipe; in Jefferson Street, 210 feet of 12-inch round cement pipe;

in Inman Street, 361¾ feet of 12-inch round cement pipe; in Fourth Street, 145 feet of 12-inch round cement pipe.

The total length of sewers constructed during the year ending Nov. 30, 1872, is 18,997½ feet, equal to $3\frac{6}{10}$ miles; and connected therewith have been built, in all, 31 man-holes and gate-chambers, 13 tide-gates, and 55 catch-basins.

The expense for the same, as paid from the appropriation for sewers and drains, including cost of care and repairs, cleaning catch-basins, alterations required by street improvements, &c., has been $72,356.27. The appropriation for the year was $70,000, afterwards increased to $100,000. Expenses have been less than the appropriation made $27,643.73. There have been paid, toward the building of sewers to abate nuisances, &c., from other appropriations, as follows: from the appropriation for the Washington Street district, $6,000; and from the appropriation for incidental expenses, the sum of $274.10. Total sewerage expenditure by the City, $78,630.37.

The total length of sewers in the city is $40\frac{7}{100}$ miles; and the total amount expended for sewers and drains, $387,644.98; which last does not include the cost of a considerable amount of sewerage now under contract by the City, as well as other sewers built at private cost.

On the 9th of March last an ordinance was introduced in Common Council, which provided for the construction of common sewers at the public expense, and laid upon the table. On the 14th of May it was taken up and referred to the Committee on Finance, and on the 21st of May said Committee reported that the ordinance ought not to pass. On the 28th of May, being further considered, the question was indefinitely postponed. The question of changing the manner of assessment and mode of payment for the building of common sewers, or the expediency, propriety, and justice of so doing, has been, and is likely to be, abundantly discussed. I have always adhered to what I conceive to be the duty of any incumbent of this office, — to require strict compliance with the ordinances of the City, as they exist and relate to this department, without any effort to anticipate decisions upon any question which may be presented for the deliberations of the Council. When rules, regulations, or ordinances are changed, it then becomes a duty

as faithfully to require compliance with and observance of their true purport.

The sewers constructed during the past year have been more costly than usual, from the fact that four of the number — Ninth Street, Harvard Street, Pearl Street, and Pleasant Street — are trunk sewers, built with reference to future requirements for drainage, and to remedy defects and relieve important systems already existing. Concerning future needs, I suggest that Alewife Brook should be improved as a sewer outlet. It must become the receptacle of all drainage from the north-westerly slope of the city; and it ought at once to be thoroughly cleansed of all roots and rubbish, and deepened, from the Almshouse to Fresh Pond, and a sluice-way, with tide-gates, should be erected at the falls north-easterly from North Avenue. Impurities will thus be diverted from Fresh Pond, and better results obtained for the system of drainage emptying into the Brook at Concord Avenue, a part of which (as far as the new pumping works) is now under contract. Another trunk-sewer must soon be built for that part of the city lying west of North Avenue. The outlets of sewers in Bath Street and Sparks Street are inadequate in capacity, and many of their branches possess the same defect. Some further construction, similar to that recommended to the Honorable City Council on the 10th of May last, may soon be necessary to complete the diversion of all sewerage within Cambridge from Miller's River to Charles River. I believe these matters to be of importance, in considering the amount of sewer appropriation for the coming year.

Miller's River Nuisance.

This subject was mentioned in the last Annual Report from this office, concluding as follows: "That the section referred to must be purified of its pollution and filth can admit of no doubt, and one alternative seems certain. The sewage, with all attendant evils, must be diverted or carried from its present points of deposit to the more free action of tide-water, at the nearest point compatible with public health." Since that was written, repeated hearings have been had before a Joint Committee of the Legislature, before the Joint Commission of the Harbor Commissioners and State

Board of Health, and also before the Honorable Board of Mayor and Aldermen. At hearings before the Legislative Committee and the Joint Commission referred to, the testimony of the City Engineer has been the decisive opinion: "That but one method existed for the abatement of this nuisance, and that was by making solid land of all the basins as far down as the Boston and Lowell Railroad;" also, "That sewerage was a secondary question, which would be considered and met by the cities of Cambridge and Somerville when the proper time arrived."

Confident that these views must ultimately prevail, it was decided by the Committee in charge to take the first step, when it became necessary to built the Ninth Street sewer, by beginning to turn sewerage from Miller's River instead of towards it. This sewer is now completed, and in all its features is adapted to the plans projected, with its outlet for the present in Broad Canal. Very recently, the labors of the Joint Commission have been completed; the investigations of their engineer, Mr. Phinehas Ball, a gentleman of extended experience and abilities, have been matured; and their reports received. The unanimous conclusion of this distinguished tribunal is: "First, that the City of Cambridge complete its system of sewerage, so that such portion of its territory as is now drained into Miller's River be drained into sewers already made or projected having their outlets into Charles River;" and, "Third, that the Cities of Cambridge and Somerville fill up with clean gravel, to the grade authorized by law, all the channel, flats, and basins of Miller's River lying east of Prospect Street in Somerville, and south-west of the Boston and Lowell Railroad."

It is a source of gratification to all citizens of Cambridge, that so clear and plain a verdict has been rendered, in justification of every step and position which has been taken by the City through its authorities, besides the endorsement of the system of drainage now partially completed.

Bridges.

By ordinance, the City Engineer is required to make annually "a careful examination of all the bridges within the city limits, and make such report respecting their condition as to safety, need of renewal or repairs, as the exigency of the case may require."

This duty has been performed, omitting the West Boston Bridge and Craigie's Bridge, as by ordinance said bridges are under the care and management of a Joint Commission, consisting of the Hon. Ezra Parmenter and Hon. F. W. Lincoln, of Boston.

Brighton Street Bridge and Draw continue in good repair, and no outlay is necessary for repairs.

Western Avenue Bridge. — The bridge and draw are in good repair. The planks on the bridge piers are in bad condition; and a new plank-walk along the front, where the lines are run, should be laid.

River Street Bridge. — This bridge is now in good repair. The fender piers are defective, and require new top planking. A petition for widening this bridge has been presented the past year, which I heartily endorse. The bridge is too narrow fully to accommodate the railroad and common travel.

Brookline Street Bridge and Draw require no expenditure of money for repairs.

Prison Point Bridge. This draw remains much in the same condition named in my last Report, and requires renewal and improvement. Some of the arms and hanging stringers are rotten, as well as the bulkhead. The wheel-box stringer is decayed, and the railing requires repairs. These alterations and improvements may be made without interruption to travel.

Court Street Bridge. The same conditions, with reference to this drawbridge, referred to in the Report last made, may again be stated; for it requires a general overhauling and rebuilding, to render it absolutely safe for public travel. When this is done, the road and water-way should both be increased in width.

North Avenue and Walden Street Bridges are in good repair as to safety.

Streets.

Continued large expenditures upon our streets and sidewalks do not serve to relieve, in any measure, the requirements made upon the City Engineer for time devoted to surveys and the preparation of plans and profiles, the giving of lines, grades, and directions covering the improvement in progress or contemplation. During the past year, action, as described below, has been taken upon the following streets: —

Austin Street. — An order passed for laying sidewalk on the north-easterly side required the taking of land near its intersection with Main Street, a title to which had been acquired by undisputed possession for forty years. Survey and plan from this office.

Brewery Street. — This street has been laid out from Broadway to Main Street, 40 feet in width. Between Broadway and Hastings Street it was defined from early dedication. Between Hastings and Washington Streets, about 2 feet was widened upon the east side, and about 18 feet on the west side, taking both land and buildings; and, from Washington Street to Main Street, land was taken for its full width. Survey and plan from this office.

Charles River Street. — This street was accepted in form by an order of November 27, in accordance with a plan prepared at this office, dated Nov. 27, 1869.

Douglass Street. — This street was laid out from Main Street to Austin Street, November 27 (to correct error in supposed previous laying out), as shown upon a plan prepared by W. S. Barbour, dated October, 1869, and presented by the petitioners for acceptance.

Dublin Street. — Orders have been passed making this street a public street between Spruce Street and the Boston & Fitchburg Railroad, and widening it to 40 feet by taking land 5 feet in width on each side. Surveys have been made, and a plan prepared at this office.

Dunster Street. — This street has been widened on the westerly side, between Mount Auburn and Winthrop Streets to the lines of an old plan by W. A. Mason.

Elm Street. — The acceptance of this street has been again asked of the City Council, and is held in abeyance for reasons set forth in last Annual Report from this office.

Forest Street. — This street was laid out as a public street, November 13, from North Avenue to Somerville line, 40 feet wide, as shown on a plan in this office, dated May, 1868, made by W. S. Barbour.

Frost Street. — From Forest to Roseland, has been laid out as a public street, 40 feet wide, and the grade established. Plan and profile presented by the petitioners, dated Sept. 1, 1872, made by Wheeler & Triscott, is filed in this office.

Highland Avenue. — Has been laid out and accepted as a

public highway, 40 feet wide from Cambridge Street to Broadway, and grade established. Plan and profile by J. G. Chase, dated Nov. 21, 1871.

Huron Street. — A new street has been laid out by the proprietors of land extending from Lakeview Avenue to Lexington Avenue. A petition for acceptance, together with a plan by Barbour and Hodges, has been presented; but the Joint Standing Committee on Roads and Bridges, to whom the same was referred, reported inexpedient to lay out the same.

Inman Street. — This street was widened upon the westerly side to 40 feet width, by taking land from the Harvard Schoolhouse lot, previous to the erection of the iron fence enclosing the same. Plan from survey prepared in office.

Lexington Avenue. — This way has been laid out and dedicated as a street from Brattle Street to the pumping-house of the Water Works; but, being imperfectly constructed and graded, has received an unfavorable report from the Committee, upon petition for acceptance. Plans have been presented by the owners of abutting land, made by Barbour & Hodges.

Main Street. — A widening has been made on the north side, from Temple Street westerly, by taking about 13 feet in width for 130 feet in length. Plan of premises furnished from this office.

Moore Street. — Land and buildings have been taken, and the street laid out, widened, straightened, and accepted as a public street from Washington Street to Main Street. Plan and surveys from this office.

Norfolk Street. — In consequence of the permanent improvement required, under an order for laying sidewalk on the easterly side of Norfolk Street, the Superintendent removed the fences between Austin and Washington Streets to the true lines of the street; which operation involved the taking of land from J. M. Thresher and J. S. Pollard, acquired by possession, and an order has been passed for payment of the same. Plan from City Engineer's office.

North Avenue. — A plan of this avenue was prepared and presented, April 10, answering to the requirements of a petition of the Selectmen of the Town of Arlington for joint action in making

said avenue 98 feet in width from Cedar Street northerly. A hearing thereon was held August 28, and no further action taken.

Oxford Street. — From Everett Street to Somerville line, has been laid out and accepted as a public street 50 feet in width, and the grade has been established. Plans and profiles were presented by the petitioners, bearing date Sept. 1, 1872, made by Wheeler & Triscott.

Portland Street. — This street has been laid out and accepted as a public street, 50 feet wide from Main Street to Hampshire Street; for which purpose land and buildings were taken the entire distance, and an order has more recently passed, laying out said street the same width from Hampshire Street to Cambridge Street, over land heretofore set apart and dedicated for the purpose. Surveys and levels have been made, and plans and profiles made at this office for record.

Sidney Street. — The petitioners for acceptance from Auburn Street to Front Street have presented a plan and profile of the same, made by E. F. Bowker, but no definite action has been taken.

Sixth Street. — A new street, in continuation of Sixth Street, as contemplated to be laid out by the East Cambridge Land Company, has been laid out and accepted from the north side of Broad Canal to Main Street, 50 feet in width; and the East Cambridge Land Company has stipulated to build a bridge over said canal, 44 feet wide, with a draw 32 feet in width, and 32 feet opening in the clear, all to the acceptance of the City. Said bridge is now in process of construction, at a cost of upwards of $6,000 for the superstructure.

Sparks Street. — Upon a petition for the acceptance of this street from Mount Auburn Street to Brattle Street, and presentation of plan and profile by the petitioners, the Committee report favorably, when the owners shall agree to waive any and all damages which may be occasioned in consequence of raising said street to the grade established. Plan made by J. G. Chase, dated Nov. 29, 1869.

School Street. — From Moore to Portland Street, this street has been widened and laid out, 40 feet wide. Land on each side was taken for widening, and at intersection with Portland Street land and building were taken. Surveys and plan for record from this office.

Temple Street. — Has been laid out and improved as a public street, and widened on the westerly side to the width of 36 feet. Plan for record from this office.

Third Street. — The improvements contemplated, as mentioned in my last Report, have been carried out in full by the removal of obstructions thereon. The obstructions here referred to became permanent, by reason of quiet possession for forty years.

Thorndike Street. — A survey and plan of this street between Fourth and Fifth Streets were made, for the purpose of showing the encroachments thereon, and an order passed directing the removal of the same.

Trowbridge Street. — The petitioners for acceptance from Main Street to Harvard Street have presented a plan and profile made by Fuller & Whitney. A report and order in conformity therewith have been introduced.

Walnut Street. — A petition for the extension of this street from Pleasant Street to River Street came over from the last City Council, and another was received in aid of the same during the present season. The petitioners have presented a plan of said premises, showing the improvement by them desired, which has been considered in committee, and sundry examinations have been made upon the ground. Diverse opinions have appeared to prevail, not in regard to the importance of the measure, but with reference to the location of said street; and no definite action has been taken.

Washington Street. — This street has been made 40 feet wide from Moore Street to Main Street, by taking five feet in width of land from each side. Plan for record in connection with the Washington Street district improvement.

Charles Street, from Third to Fifth Street; Cottage Street, in Ward Five; Fifth Street, from Charles Street to Spring Street, and from Gore to Winter Street; Pleasant Street, Park Street, and Pond Street, — have received no action the present season, but remain as described in Report of last year. Plans of each are filed in this office.

In connection with the above streets, for the purpose of indicating, in a permanent manner, the lines and boundaries of the same, as laid out, forty-two stone bounds have been set, and a large additional number are now prepared for placing.

A large amount of labor not embraced by the above enumeration has been required for determining matters upon permanent or contemplated improvements.

New Avenue from Cambridge to Boston. — In reference to this avenue, my last Annual Report alludes to its "necessity, convenience, economical advantages, cost, method of construction, and particular location," as among the questions to be solved. A plan was prepared, and subsequently submitted to the Joint Committee of the Legislature having in charge the investigation of this matter. Sundry hearings were had, which resulted in its commitment to the next Legislature. I can but view this subject as entitled to further and full attention, as important for the interests of Cambridge; and believe its execution to be a question of time alone, which diverse opinions or personal interest will unjustly prolong. Its great public advantages do not admit of argument.

Water Works.

For the enlargement and extension of the Water Works upon a scale of liberality adapted to the requirements of the city, appropriations have been made with a view to the removal of the pumping-works to a more safe and convenient situation. Plans have been prepared as adapted to this change, under direction of a sub-committee of the Water Board, and contracts have been made for the execution of the same with Wm. M. Rumery & Co. for the foundations, pump-well, screen-wells, &c., with Geo. C. Barney for the conduit, and with W. C. Poland & Son for the erection of the building.

Work has been commenced by the two first-named contractors; satisfactory progress has been made upon the foundations, and the pump-well completed by Messrs. Rumery & Co.

The preparation of all detail plans pertaining to this much-needed and extensive improvement, and the superintendence of their faithful execution, have devolved upon the City Engineer, requiring much time and attention. Matters pertaining to the work in hand will undoubtedly be presented in the report of the Water Board and Superintendent of the Water Works, and no further reference to it is necessary by me.

Washington Street District.

This district, comprising an area of upwards of thirty-two acres, has at last been reached by the hand of progress. From 1868 to the closing action of the last year, no precise determination had been reached as a basis for definite action; but the progress now made and making in improvements ordered, will result in redeeming for the future this uninviting section, in contributing to the reputation and resources of the city, and in ultimately conferring great pecuniary and personal benefits upon that class of citizens more directly interested, — the land-owners themselves in this district.

An abstract of operations for the year is as follows: —

Dec. 13. A report was submitted by the City Engineer, accompanying the abstract of titles to the several estates thereon.

Dec. 20. An order was passed directing the City Clerk to issue orders to, and have the same served severally upon, all owners of land situated and lying within the district in this city referred to by Chapter 391 of the Statutes of this Commonwealth for the year 1869, directing such owners severally to fill their lands with good material to the grade established, within three months after service thereof, as provided by said chapter.

Jan. 31. A communication of the City Engineer was presented, relating to grades of streets on said territory, &c.

April 20. The Board of Mayor and Aldermen made an official visit to the Washington Street district, with a view to examine in regard to the laying out and widening of streets and other matters of improvement.

April 27. An order was adopted authorizing the Committee on Health to advertise for proposals and estimates for raising to grade the Washington Street district.

May 29. The Mayor was authorized to execute a contract for the above filling, with such persons as the Board should approve with their sureties.

June 5. An order was passed authorizing the creation of a City Debt of $200,000 for the purpose of filling up the low lands in this district, and otherwise improving the same.

June 10. The Mayor executed a contract with Mr. N. C. Munson, for the performance of work required, and —

June 19. The same was adopted and approved, and the acceptance of Nathan Matthews as bondsman of the said Munson was also approved.

July 31. The City Engineer was directed to raise all buildings, and remove the fences in the district where the parties have neglected to do so, at the expense of said parties.

Oct. 2. An order was adopted directing the City Engineer to remove the buildings in the Washington Street district that have not been raised, the time having expired for the owners to remove them. In obedience to instructions contained in the last order, two buildings have been removed from lands taken for a public street, and have been fitted up for convenience of the tenants occupying them, one of which was formerly owned by J. M. Thresher, and the other by B. W. Whitney, and —

Nov. 20. An order was adopted directing the Committee on Health to notify the tenants and occupants of such buildings as had been abandoned by the owners, and taken possession of by the City, to pay rent hereafter to the City.

Notwithstanding that the contract for furnishing material, filling and grading said territory, was executed on the 10th of June, no material was furnished, filling or grading done or commenced, until October 2 following, — an occurrence which would, if strictly interpreted, have rendered the contract void, and the contractor responsible for damages accruing. Since that time, with unusual exertions bestowed on the part of the agents of the City to effect it, the work has been pursued, and is now being prosecuted with commendable despatch; which rate must continue, in order to comply with the terms of the contract as to completion Sept. 1, 1873. The delays referred to have been the occasion of some, but not unusual, complaint from residents there; but every effort has at all times been made to render their inconveniences as light as possible. The amount paid upon the filling, grading, and distributing contract, to and including the estimate ending December 2 current, is $18,082.50.

The time and care required in making surveys and computations upon this territory, in correctly adjusting the same between each individual and the City, amid multitudinous changes and questions which constantly occur, have been great, necessarily increased from

the magnitude and accuracy required by the circumstances under which the improvement is made. For a considerable portion of the season, a small party has been and is now required from this office; and, no inconsiderable portion of the time, a personal supervision by the City Engineer. It is an absolute necessity that the work of filling should continue through the inclement winter season, and therefore the duties required from the office must also continue. The work thus far has been confined to the section lying west of the Boston & Albany Branch R.R., and south of the dividing line between lots on Hastings and Washington Streets, within which section the filling is mostly completed.

The total amount expended to December 2, relating in any manner to improvements upon the Washington Street district, — including the laying out, widening, straightening, and extension of streets, damages accruing from the taking of lands and buildings, building of sewers, raising or removing and repairing buildings, filling and grading said territory, &c., — is $51,949.28.

Low Lands.

In pursuance of the authority conferred by Chapter 299 of the Statutes of the Commonwealth, for the year 1872, the Board of Mayor and Aldermen has taken preliminary measures for raising to the established grade certain sections of low lands in the city; thereby preventing, at the inception of improvement and occupancy for business purposes or for habitation, the creation of another repulsive locality, with like proportions to the Washington Street district.

On the 19th day of June last, an order was offered, which was adopted and approved July 2, with reference to a complete drainage of lands, so as to abate and prevent nuisances, and to preserve the public health of the city, directing the several owners of lands lying within the territory bounded by Somerville line on the north, Cambridge Street on the south, Webster Avenue on the west, and the Boston & Albany Branch R. R. on the east; the surface of which lands is below thirteen feet above mean low water, to raise the grade of their said lands, filling up the same with good materials to a grade not less than thirteen feet above mean low water,

and to raise the grade of all private streets, courts, and ways upon their said lands, filling up the same with good materials to a grade not less than sixteen feet above mean low water. In case of non-compliance with this order, the Board of Mayor and Aldermen gave further notice of its intention forthwith to proceed to raise the grade of the land and private streets, courts, and ways to the grades ordered to be raised by such owners, and collect the expense thereof, and take such other proceedings in the premises as deemed expedient and proper, all as provided by said Chapter 299.

A similar order was passed and approved August 2, embracing the section of low lands bounded by Pleasant Street and Western Avenue on the east and south, Putnam Street on the west, and Main Street on the north; and also another order, as approved October 10, for filling and grading the lands lying within the territory bounded north-easterly by Mount Auburn Street, easterly by Putnam Street, southerly by Western Avenue, westerly by Charles River, north-westerly by Holyoke Street, and a line therefrom to Charles River so as to terminate at the south-westerly corner of the wharf owned by the heirs of Solomon Sargent.

In each of the several sections of the city covered by the above-named orders, the grades have been furnished by the City Engineer, as directed; and, when desired by any of the numerous owners of land affected by the order, explanations and further information have been furnished from the office or upon the ground. But *very few* persons have complied or attempted to comply with the conditions of the orders issued, leaving the matter, I doubt not in most cases, to be dealt with by the City, as of pecuniary advantage to themselves. This now appears to be the only alternative, and the matter will require consideration by the honorable Board of Mayor and Aldermen at the proper time. The importance of the measures here inaugurated, to the city and citizens, will admit of no question, and I trust they will receive prompt action.

Several petitions presented to the City Council, by persons who desire permission to maintain cellars below the grade fixed by the Act named, have been referred to the City Engineer, with power; who, in the belief that the grades named for such purposes are those which ought, almost without exception, to be adhered to, has refused compliance with the wishes of the petitioners; and any one

who has neglected to comply fully with the intent of the grade Act has done so at his own option and risk, subject at any time to the enforcement of an order of compliance.

Cemetery.

Frequent calls have been made in the course of the season to aid in the requirements of the Commissioners of the Cambridge Cemetery.

The grounds have become so contracted as to require a change in the arrangements of the lots. So frequent became the demand for small or moderate-sized lots, that it was necessary to convert ranges of lots of usual size into a series of those required. The "public lot" has become entirely filled, and it has become necessary to convert a portion of the grounds from their original design, to increase the area devoted to this purpose. However undesirable, no other remedy was at hand. Plans for such changes have been prepared; lots, avenues, and paths, with other lots required, have been staked; and grades given. The time cannot be far distant when actual requirements will necessitate the purchase of contiguous lands, or the selection of some other location for the purposes of burial; and it is to be regretted that action could not have been taken before the changes referred to had become necessary. I believe the Cemetery Commissioners deem an increase of territory required, and that they will recommend additional purchase for future wants.

In this connection, I suggest for consideration the purchase of land lying between the present Cemetery grounds and Mount Auburn Street, and the practicability of a new street from Mount Auburn Street to the Cemetery. A survey was made and a plan prepared for this street in 1868, which was referred to in my Annual Report of that year as follows: "It is desirable and but reasonable to expect that measures will also be taken by the City, at an early day, to lay out and build the proposed new way leading from Mount Auburn Street to the north-east corner of the Cemetery. The expense attending such action seems trifling, when the advantages are considered, as presented by a much shorter route, for

probably nine-tenths of those who visit the premises." The same inducements for action in this respect may now again be presented.

Horse-Railroad Tracks.

An order was adopted December 27th last, granting a location to the Cambridge Railroad Company, to lay tracks in Pearl Street. A plan was prepared at this office for a single track from Main Street to Walnut Street, with suitable turn-outs, and is now on file. The track has been laid from Main Street to Hamilton Street, and is in operation. Permission has been granted, and an additional track laid in Cambridge Street from Eighth Street to Atwood's Corner. A petition has been presented to the City Council for the right to lay a track in Prospect Street, from Main Street to Cambridge Street; and this proposed measure will undoubtedly recommend itself favorably to the consideration of the next City Government, to which it is referred, as one intended to facilitate transit from and to sections of the city now somewhat isolated and inconvenient of access.

A New Map of the City

Has been prepared by the City Engineer, mostly from actual surveys, intended for publication as a reliable and useful map. None of such a character has ever been put forth by recognition of the City Council, or by private enterprise; and this is designed to supply a want long existing.

An order authorizing and instructing the City Engineer to procure five hundred copies of the map, at a cost not to exceed $350, has been adopted. The work now required to complete it will be performed at once, and its publication secured at an early day.

Office.

During the past year, eleven different persons have been employed in this office, transiently and permanently, as the requirements for work demanded. On the 7th of February, an appropriation of $8,000 was made for the Engineering Department. The expenditures, including the salary of the City Engineer, all sums

paid for labor, stationery, drawing-paper and materials, repairs on instruments, and conveyance, as appears from vouchers, have amounted to $6,847.82. In addition to this sum there has been paid from the appropriation for the Washington Street district, for special surveys required thereon, the sum of $423.62, making the total expenses of the office for the year $7,271.44.

Respectfully submitted.

J. G. CHASE,
City Engineer.

REPORT

OF THE

COMMISSIONER ON BRIDGES.

To the Honorable the City Council of Cambridge: —

THE Commissioners on West Boston and Canal or Craigie's Bridges, in conformity with the ordinances in relation to the care and management of said bridges adopted by the City Governments of Boston and Cambridge, submit their Second Annual Report.

West Boston Bridge.

The extensive repairs on West Boston Bridge were nearly completed at the date of the last Annual Reports of your Commissioners, the substitution of gas for the oil lamps, building gates of a new pattern to replace the old ones, and several items of minor importance, were left uncompleted.

Early in the spring the gas pipes were attached to the outside of bulkhead stringer, and it was the intention of the Commissioners to box the pipe, as this precaution was thought necessary to prevent obstruction of the pipe by freezing. Upon further inquiry it was ascertained that the gas pipes on the bridges belonging to the City of Boston were not protected in any way from the cold, and no difficulty from freezing had ever been experienced. The boxing was therefore omitted, except upon a small section of the bridge. The lamp posts were placed outside of the bridge railing, and in this position are no longer an obstruction to the sidewalk, or liable to be broken or injured by teams.

New gates of an improved pattern have been built for this bridge by Messrs. Ross & Lord during the past year, and the old draw has been repaired sufficiently to keep it in running order. It needs new track frames and other repairs, the making of which

has been postponed until the winter months, to avoid interrupting the travel over the bridge.

The wooden pavement laid on the pile portion of this bridge has worn as well as was expected. Some difficulty was experienced with the Warren pavement for a short time, the heavy rains displacing it; but since this defect was obviated the pavement has stood well. It is, however, the opinion of your Commissioners that a wooden pavement is unsuitable for bridges built after the style of the bridges under our charge.

The salt mud covering of the bridge upon which this pavement is laid is impervious to water, and during heavy rains the wooden blocks are always liable to be displaced by the passage of teams, when the tendency of the blocks, from the excess of water under and around them, is to float. The side thrust of the pavement, if frozen when in this saturated condition, subjects the bulkheads of the bridge to a greater strain than a stone block or cobble-stone pavement, the wooden blocks expanding by the freezing of the water contained in them, while the stone block or cobble-stone expands only from the freezing of the gravel or earth in the interstices of the pavement.

The wooden pavement was adopted for this bridge as petitions numerously signed by prominent citizens of Cambridge and Boston in favor of this pavement were received by your Commissioners, and it was also thought to be an advantage to the bridge by reducing the weight of the permanent load upon it.

It is our intention, in making the proposed improvements on Canal Bridge, to pave the roadway with small granite blocks, as being the best pavement under all circumstances for the purpose.

A petition has been received, signed by a large number of citizens of Cambridge, requesting the application of steam or other power to the draw of West Boston Bridge, to facilitate moving the draw and aid vessels in passing through the draw-ways. A careful examination of several methods proposed for this purpose has convinced your Commissioners that the application of steam power would be the most efficient and economical. An estimate of cost of a double-cylinder engine of eight-horse power, with the necessary shafting and gearing, was obtained shortly after the receipt of this petition. This estimate, including the cost of an engine-house

and coal-shed, was about $4,500, and at that time it was not thought advisable to incur so large an expense in connection with the old draw. Your Commissioners are obliged by an Act of the Legislature to make the draw openings in this bridge 36 feet wide instead of the present width of 30 feet. To span these openings a new draw, 12 feet longer than the present one, will have to be constructed, and although we have not thought it necessary to comply with the requirements of this Act until the draw-ways of Warren Bridge and the several railroad bridges between Warren and Canal Bridges were widened, the action of the railroad corporations and the Commissioners on the Charlestown Bridges in widening during the past year the openings in their bridges, leaves us no excuse for further delay. A considerable sum in interest on the cost of these improvements has been saved, and they would have been of no use until the other draws were widened.

With a new draw of improved construction the use of steam power in opening and closing it would not, perhaps, be necessary; the new draw on Warren Bridge can be easily and rapidly operated by hand power. But the time consumed in opening and closing the draw is not the principal cause of the vexatious delays complained of on the West Boston Bridge. The length of this bridge gives so great a width of water-way for the ebb and flow of the tide, the current in the main channel is not so rapid as at the other bridges, and much of the delay is occasioned by the slow and tedious process of warping vessels through the draw-way without much aid from the current. At the time we had the matter under consideration it was thought to be a measure of doubtful expediency to apply the necessary machinery to the old draw structure, as by the plan proposed much of it might be useless for a new one. A method has however been devised by which the same machinery can be applied to the new draw, and it is our intention to make the proposed repairs on the old draw, and use this machinery upon it during the reconstruction of Canal Bridge.

The cost of the improvements so far made under the direction of the Commissioners on this bridge is $56,746.46.

Canal or Craigie's Bridge.

The reconstruction of this bridge has been delayed for the same reason which has been given in the case of the West Boston Bridge. It is also important for the Lowell Railroad Corporation to co-operate with your Commissioners in making the alterations in this bridge, or the navigation of the river will be subjected to needless obstruction. The new draw, by direction of the Harbor Commission, will have to be placed 160 feet nearer the Cambridge end of the bridge, and the position of the railroad draw altered to make the draw openings come on the same line. The old draw-way on Canal Bridge is to be covered with a new superstructure, and when this is done vessels, instead of being in line to go through the new draw-way, after passing through the railroad bridge, will be compelled to make two changes in direction in a contracted channel to accomplish this object. Your Commissioners have not consulted the railroad authorities upon this subject, but we have no doubt they will consent to co-operate with us in making these alterations.

The plans which have been adopted for the reconstruction contemplate widening the present structure to 64 feet, a new draw 50 feet in width, with piers and openings in the position fixed by the Harbor Commission, a renewal of the bulkheads and fences, the driving of additional piles in the old bridge piers where the superstructure is raised, several new piers between the present ones which have settled, and repaving the roadway with small granite blocks. The width of 64 feet which has been decided upon will enable us to use such piles in the present fender-guard as may be suitable, at much less expense than would be required if a greater width were adopted. The sidewalks will be 10 feet wide, leaving 44 feet for the roadway, which is ample for two horse-railroad tracks and three lines of teams.

The Street Commissioners of Boston were informally consulted before we decided upon this width. Their opinion was that 60 feet would be the greatest width it would be expedient to adopt for Leverett Street, if widened, although no objection would probably be made to widening the street to 64 feet from the bridge to North Charles Street. The plans upon which the estimate of last year

was based contemplated widening the bridge to 75 feet, to correspond to the width of Bridge Street in Cambridge, but your Commissioners do not feel authorized to incur the expense of making it this width since their consultation with the Street Commissioners.

In deciding to make the draw 50 feet wide instead of the full width of the bridge, we have been influenced by our investigations of the various bridges over tide-water belonging to the City of Boston.

The draw on the Broadway Extension is the width of the bridge, 60 feet, and is the only one of greater width than is proposed for Canal Bridge. It is an iron draw of immense weight, unwieldy and cumbersome to manage, and although it is operated by means of caloric engines, more time is consumed in opening and closing it than upon any of the other bridges. On Federal Street Bridge, which is 70 feet wide, two draws, each 30 feet in width, were adopted, to avoid the construction of a single draw of 60 feet. None of the other Boston bridges have draws of a greater width than 40 feet. The Charlestown and West Boston Bridge draws are 50 feet, and we believe these to be as wide as it is expedient to make them. The new draw on Warren Bridge combines all the more recent improvements in structures of this kind, and we propose to construct one similar in design.

The Engineer's estimate of the cost of improvements on this bridge is $160,000, and as soon as the plans have received the approval of the Harbor Commission, we shall advertise for proposals for doing the work. To avoid delay the contractor should have two months' time, previous to beginning work under his contract, to procure suitable timber, much of it being of sizes not easily obtained unless sawed to order. The bridge will have to be closed to team travel for a period of three or four months.

Only such repairs as were necessary for safety have been made upon this bridge during the past season. The draw broke down early in the spring. An examination of the timbers showed them to be so much decayed as to be in a dangerous condition. The bridge was at once closed to the passage of teams, and the draw thoroughly reconstructed, the foot travel being accommodated by a small swing-bridge.

Appended to this Report is a statement of the amounts expended

upon the bridges from December 1st, 1871, to December 1st, 1872, which are chargeable to the City of Cambridge, and also a statement of the number of times the draws have been opened in the same time.

Respectfully submitted.

EZRA PARMENTER,

Commissioner.

Payments on account of West Boston and Craigie's Bridges, as shown by statement of the City Auditor, have been, —

For Commissioner's salary	$500.00
,, repairs and materials	11,724.05
,, gas pipe and fixtures	862.24
,, labor	1,660.59
,, other expenses	75.37
	$14,822.25

Appropriation	$20,000.00
Amount expended	14,822.25
Balance unexpended	$5,177.75

REPORT OF THE SUPERINTENDENT OF WEST BOSTON BRIDGE.

Number of times the draw has been opened during the year : —

December, 1871	48
January, 1872	9
February	2
March	17
April	155
May	297
June	204
July	208
August	171
September	174
October	210
November	172
	1,667

REPORT OF THE SUPERINTENDENT OF CRAIGIE'S BRIDGE.

Number of times the draw has been opened during the year : —

December, 1871	54
January, 1872	49
February	31
March	53
April	285
May	759
June	679
July	457
August	522
September	540
October	574
November	377
	4,380

REPORT

OF THE

TRUSTEES OF THE DANA LIBRARY.

To the Honorable City Council of Cambridge: —

The Trustees of the Dana Library respectfully present this their Fifteenth Annual Report.

The benefits derived from the Dana Library by such of our citizens as have improved in any degree the opportunity and advantages thus offered them, cannot be estimated nor stated by detailed figures, but we find that three hundred and four subscribers have this year searched for knowledge amongst the five thousand nine hundred and thirty useful, entertaining, and, in many cases, valuable books now under the charge of the careful librarian.

The number of subscribers this year exceeds that of last by five only, which excess probably does not equal the expectations of the Trustees of last year, who leased and fitted up an additional room as a Reading Room; still, the attendance in the Reading Room has been very satisfactory, furnishing ample proof of the public appreciation of the privileges thus bestowed. The high character of many of the works recently added to the Library begins to attract attention, and to draw thither students in various branches of knowledge. Thus the usefulness of the institution is happily increased. The number of visitors to the Reading Room from March 23 to November 30 was one thousand eight hundred and thirty-two.

The Trustees have had applications to keep the Reading Room open each week-day evening from 6 to 10 o'clock, and furnish it with the leading newspapers in addition to the magazines already furnished. Believing that granting this application will add very much to the usefulness of the Reading Room, and will be likely to

interest many more persons in the Library, the Trustees have voted to try the experiment for the ensuing year.

During the year six hundred and thirty-two volumes have been added to the Library. Five hundred and fifty-nine of them were purchased out of the City's appropriation; sixty were received from Captain Wm. A. Parker, U. S. N.; one from J. B. Wiggin; one from State Board of Health; three from the Cobden Club; one from the Bureau of Statistics of Labor; and seven from Dr. Mehaffey.

The whole number of books now belonging to the Library is five thousand nine hundred and thirty-six, from which six books missing and unaccounted for in the annual examination must be deducted, leaving five thousand nine hundred and thirty.

With the increase, slight though it is, in the number of subscribers, the number of books given out during the year is less by two hundred and fifteen than last year.

The cause for this is certainly not to be found in any lack of interest or inducement, but rather in the many exciting events of the year. The Trustees feel that no person of either sex, old or young, can visit the Library and find it wanting in any department of literature that would be recognized in any select public Library, containing as it does nearly six thousand well selected volumes, comprising works on art and science, standard literary works, and the better class of fiction.

The number of books given out during the year was . .	13,488
Weekly average	271
Largest number in any day being	173
,, ,, ,, ,, week ,, ...	394
,, ,, ,, ,, month (March)	1,614

Amount received from subscribers	$304.00
,, ,, ,, fines	19.15
,, ,, ,, sale of catalogues	10.75
Total	$333.90

Which has been paid into the City Treasury.

Amount of the City's Appropriation was		$3,500.00
Of this there has been expended, —		
For salary of Librarian	$375.00	
,, ,, ,, Assistant	108.33	
Rent and care of rooms	685.25	
Fitting room and bookcase	1,446.13	
Books and stationery	533.85	
Other expenses	244.61	
		$3,393.17
Balance unexpended		$106.83

Respectfully submitted.

HENRY O. HOUGHTON,
JOSEPH A. HOLMES,
JOSHUA G. GOOCH,
WM. W. WELLINGTON,
CHARLES DEANE,
ANSON P. HOOKER,
Trustees of the Dana Library.

CAMBRIDGE, *Dec.* 30, 1872.

REPORT

OF THE

TRUSTEES OF THE DOWSE INSTITUTE.

To the Honorable City Council of Cambridge:—

The Board of Trustees of the Dowse Institute would respectfully report: —

The course last season was given at Lyceum Hall, and consisted of Lectures by William Parsons, James T. Fields, W. H. H. Murray, W. H. Niles, and W. H. Milburn; of Readings by J. E. Murdock and J. W. Churchill; and of a Concert by the Mendelssohn Quintette Club.

The following is an abstract of the Treasurer's Annual Report, a copy of which accompanies this Report: —

Dr.

To paid for lectures, readings, and concerts	$790.00
,, ,, ,, use of hall	80.00
,, ,, ,, door-keepers and attendance	48.00
,, ,, ,, printing, advertising, &c.	32.25
	$950.25
To balance to new account	81.89
	$1,032.14

Cr.

By balance from last account	$32.14
,, interest, City of Cambridge	600.00
,, sale of tickets	400.00
	$1,032.14

Respectfully submitted.

CHARLES DEANE,
H. O. HOUGHTON,
JOHN C. DODGE,
ALVARO BLODGETT,
W. W. WELLINGTON,
Board of Trustees.

CAMBRIDGE, *Dec.* 27, 1872.

REPORT

OF THE

TRUSTEES OF THE SANDERS TEMPERANCE FUND.

The Trustees of the Sanders Temperance Fund respectfully submit to the City Council their Eighth Annual Report for the financial year ending Nov. 30, 1872.

The Fund ($10,000) remains invested, as heretofore, in notes of the City, bearing interest at six per cent., and producing an income of six hundred dollars, which has all been paid to the Missionary.

The deed of trust by which this Fund was created stipulates that the income shall be applied to the payment of the salary of some worthy man, who "shall be constantly employed as a Missionary in the cause of Temperance." In accordance with this requirement, the Trustees appointed in April last the Rev. Wm. R. Stone as the Missionary. His long experience in the office, in previous years, his freedom from other occupation, and his extensive acquaintance with the poor and unfortunate of our city, have admirably fitted him for the discharge of the duties of his office. We append herewith his Report.

H. O. HOUGHTON,
ALVARO BLODGETT,
S. J. BROOKS,
ISAAC C. HOLMES,
C. L. HARDING,

Trustees of the Sanders Temperance Fund.

Cambridge, *Dec.* 31, 1873.

REPORT OF WILLIAM R. STONE,

SANDERS TEMPERANCE FUND MISSIONARY.

To his Honor the Mayor and the Honorable Trustees of the Sanders Temperance Fund:—

THE undersigned would respectfully submit this his Annual Report. The labors of your Missionary have not varied much during the year just closing from those of other years in the same field, either in kind or in degree. Under the guidance of the same kind and powerful hand which has always upheld and strengthened him, he has been enabled to pursue his work of seeking out and endeavoring to reform the intemperate. This has been done in the court-room, in the prison, in the dwelling, and in the street, wherever *any* were found that needed the benefit of his labors.

The number that I have individually approached is about two hundred; these have promised to amend, and have signed the temperance pledge. But with all our efforts to reform men and women, it is still painfully apparent that we are making little progress, and can hope for but little so long as we permit the means of intoxication in all our streets so freely now. After all that we have done or can do, our trust must be in God; but we must do our duty before we can have a right to ask His blessing.

Respectfully submitted.

WILLIAM R. STONE.

CAMBRIDGE, *Dec.* 31, 1872.

REPORT

OF

ENOCH J. HOWLETT,

MILK INSPECTOR.

To his Honor the Mayor and City Council of the City of Cambridge: —

THE undersigned would most respectfully submit his Fifth Annual Report for the year ending Dec. 1, 1872: —

The milk trade of the city is divided into three classes: 1st. Those dealers who sell from wagons or carriages. 2d. Those dealers who sell from their stores or shops. 3d. Those who keep cows and sell to the families in their neighborhood.

The number of wholesale dealers recorded since last Report	5
Whole number of wholesale dealers registered	55
Number of wholesale dealers now in business	47
Names and places of business of retail dealers recorded since last Report	20
Whole number of retail dealers registered	427
Number of retail dealers now in business	216
Number of persons keeping cows registered	70
Number of cows kept by those registered	115
Number of cases of milk analyzed by chemist	6
Largest amount of adulteration (water intentionally added in 100 parts) in the cases analyzed	34.80
Least amount of adulteration (water added) in the cases analyzed	21.72
Number of complaints in the Police Court	6
Number convicted in the Police Court	6
Number having appealed to higher court now pending	1

All places where milk is publicly sold in the city have been visited and the milk inspected. I have answered every call to inspect the milk left at the houses of the citizens. In general, the milk furnished to private families by the milkmen is free from adulteration.

There are persons in the city who are disposed to believe that all milkmen are dishonest, and that they never furnish to either families or stores a pure unadulterated article of milk. My experience and observation have been, that there are those of our milkmen who are honest and conscientious, and sell the milk to their consumers as they receive it from those they purchase of. I have known of their selling better or richer milk than that they have received; that is, when milk has been poor, thin, greasy looking, they have, to satisfy and retain their customers, increased the richness or per cent. of cream, by not selling more than six of the eight quarts contained in the can, selling the remainder of the can for skim milk at reduced rates. The average standard of the milk sold to the families in the city is eighteen degrees, specific gravity.

The duties of the office have greatly increased during the year, from the interest which the subject of the adulteration of milk has awakened in the minds of our citizens, which has led many to avail themselves of the services of the Inspector. Private houses, stores, shops, and milk wagons have received attention, and those interested will bear testimony to the aid and assistance that have been rendered by this office during the year.

A large proportion of our milk is distributed to the customers by the milkmen between the hours of four and ten o'clock in the morning, and it is important that the Inspector should be attending to his duties in those hours, otherwise he cannot know the quality of the milk left. The general inspection of milk in the stores and shops must be attended to in the forenoon, as most of their customers are supplied in the early part of the day.

The milk cans used for the conveyance and sale of milk by the dealers hold eight quarts and one-half pint, and no milkman is considered equipped for business unless he is owner of two or three full sets of cans sufficient to contain the necessary milk for his daily route, one set being in use, while the others are on their way to the country for a fresh supply. Many of the milkmen

engaged in the family trade have small cans, holding from a pint to four quarts, which they fill from the larger to suit their customers. Many of our families prefer to receive their daily supply in small cans of a size to meet their wants. To this arrangement none can object, provided the cans are sealed, showing the quantity which they hold.

It is well known that the articles used in the adulteration of milk are not in themselves injurious to health, but, when placed in milk, the character of the milk so far changes that it does not afford the nourishment required, and as it is often recommended by the physician as a remedial agent, it is very important that the article furnished by the milkmen should be good, rich, pure milk, free from adulteration. People suffering from disease require food as much as those in health, and more so in certain diseases where there is a rapid waste of the system. Frequently all ordinary food, in certain diseases, is rejected by the stomach and loathed by the patient; but Nature, ever beneficent, has furnished a food that in all cases is beneficial, in some directly curative. Such food is pure milk.

In this connection it may be of service to families to know that very many physicians highly recommend the condensed milk for sickness, especially for infants. This article is sold in hermetically sealed cans, samples of which have been analyzed by the chemist and found to be a pure compound of rich cream and granulated sugar, which can be diluted with water to suit the tastes of the parents and the necessary want of the child.

When families return to the city after a sojourn in the country, they at once notice the difference in the quality of the milk, and it is difficult for them to believe even the certificate of the chemist as to its purity. It is well known that the quality of the milk depends upon the percentage of cream which it affords and the solid matter it contains. All pure milk contains from 85 to 87 per cent. of water, and the amount of cream varies from 12 to 20 per cent.

Generally cows which are kept for family use are of that class which affords a medium quantity of milk which is rich in cream. But where marketing is an object, and cows are kept more especially for the improvement of the farm, it is certainly more profitable for their owners to have cows which will produce the largest

quantity of milk, without regard to its quality. Hence it is that not a little of our milk, when distributed to the consumers, however pure it may be, is poor and thin, and has the appearance of having been deprived of a portion of its cream, when, in reality, its quality is the same as when drawn from the cow.

The following statement of the analysis of milk, made from samples furnished by your Inspector during the year, by Mr. James F. Babcock, chemist of Boston, shows the specific gravity, amount of cream, fatty matter, and water in each sample, as well as the amount of water intentionally added that is present as an adulteration.

Date of Offence.	Name of the Dealer who sold the Milk.	Analysis No. and Mark.	Specific Gravity.	Per cent. of Cream.	Per cent. of Solid Matter.	Per cent. of Water.	Per cent. of added Water in Sample.	Amount of Fine paid in Police Court.
June 10	James Gallagher .	No. 1	1.023	4	8.80	91.20	34.80	$50.00
,, 14	Enos Reed	,, 2	1.025	8½	10.60	89.40	24.28	20.00
July 2	Frederick P. Hosley	,, 3	1.026	6	11.1	88.9	21.72	20.00
,, 2	Daniel S. Benjamin	,, 4	1.020	5	8.5	91.5	39.29	20.00
Aug. 17	Sydney Laurence .	,, 5	1.025	3½	9.83	90.17	30.66	20.00
,, 17	Sydney Laurence .	,, 6	1.025	3½	9.83	90.17	30.66	20.00

Respectfully submitted.

ENOCH J. HOWLETT,

Inspector of Milk.

REPORT

OF

SEALER OF WEIGHTS AND MEASURES.

To his Honor the Mayor and City Council of the City of Cambridge: —

The undersigned would respectfully submit his Fourth Annual Report for the year ending Dec. 1, 1872: —

During the year I have visited all stores, shops, manufactories, and places where scales, weights, or measures have been in use, either for buying or selling, and have tried, proved, adjusted, and sealed all scales, weights, or measures found in said places.

Number of places visited	453
,, ,, scales sealed	778
,, ,, ,, adjusted	130
,, ,, ,, condemned	22
,, ,, weights sealed	3,237
,, ,, ,, adjusted	321
,, ,, ,, condemned	17
,, ,, measures sealed	2,014
,, ,, ,, adjusted	85
,, ,, ,, condemned	55
,, ,, yard-sticks sealed	72
,, ,, ,, condemned	1
,, ,, charcoal-baskets sealed	12
,, ,, ,, condemned	3

The following table will show the business places visited : —

Apothecaries	19	Grain	5
Butter and Cheese	3	Groceries	126
Bakeries	13	Groceries and Provisions	29
Bread and Cake	9	Hay Scales	4
Book Binderies	2	Hardware	8
Brass Foundries	9	Iron Foundries	4
Butchers	2	Ice Yards	2
Bacon Works	1	Ice Tools' Manufactory	2
Confectioners	12	Junk Store	1
Cement	2	Machinists	6
Cigars and Tobacco	6	Milliners	3
Coal and Wood	19	News Depots	5
Charcoal	2	Pork Packers	3
Curriers	6	Plumbers	5
Dry Goods	18	Paint	3
Dress Makers	4	Paper Collar Manufactory	1
Furniture	1	Stoves	6
Flour	1	Stone Wharfs	3
Fruit	1	Tailors	3
Fish	9	Tin Shops	4
Glass	3	Variety Stores	17

A uniform standard of weights and measures is of interest to every family in the city, and is of the most vital importance to all who desire a correct system of weighing and measuring the commodities of life.

In the places visited I have found a variation from the standard in scales, weights, and measures. It is no uncommon occurrence to find scales in use out of balance, in some cases intentionally and in the dealer's favor, and in some to the advantage of the purchaser, but in most cases against him.

An even balance is weight in all cases, and the weight should never be taken while the beam is in motion.

Many persons are of the opinion that to have weight they must have an up beam, and some dealers, to suit their customers, have so changed the balance of their scales that, to give just and true weight, the beam must rise to its utmost height, thereby giving satisfaction to the purchaser without loss to the dealer.

In many cases the scales in use upon the counters of the stores are in favor of the purchaser; the accumulation of rust and dirt, and the natural wear of the scales, retards the movement, requiring

a greater amount to move the beam, and unless the goods are dropped heavily into the scale, the weight shown would, most likely, exceed the just and true weight.

The scales in use in the city, a large proportion of which are the Fairbank patent, are, when new, accurate, with a quick movement; but, as they become worn, they are slow and less accurate, and they should be sent to the manufacturer and have the pivots reground or sharpened. It is a duty the dealer owes to himself and to his customers that his scales should be kept accurate and true, and the scales that are so much in use, as those in the groceries and provision stores, should be sharpened or reground as often as once a year.

The wooden or dry measure in use in the city I have found to be correct. My attention has been called to pedlers who have come from other towns, using the wooden or dry measure much below the standard. I have found them with the bottom of the measure driven up to such an extent that they would not contain more than two-thirds the required amount; in such cases I have condemned and destroyed the measure.

The tin or liquid measure in use I have found a great variation from the standard, even when new. I have visited the manufactories, and have sealed the patterns of the makers, that the measures might be true with the standard; but, from negligence or carelessness on the part of the workmen, the tin liquid measures I have found inaccurate and unreliable; the gallon measure I have found to be from half a gill to half a pint less than the standard, and the smaller measures in like proportion.

Every dealer should consider it a duty that he owes to his customers that his measures should be kept clean, from which molasses, oils, varnishes, &c., are sold; the accumulation of those articles in the measures reduces their capacity, thereby depriving the purchaser of his just quantity. Some dealers set their measures in a reverse position, that they may drain off the remaining contents therefrom, thus keeping them clean. Where such method is not in use, I think the measure should be cleaned as often as once a day.

It is said there is no need of examining the weights and measures as often as once a year. My own experience has shown to

the contrary, having found it necessary to visit places two or three times during the year by invitation of the dealers. It depends upon the use that the scales are put to, and the position they may be placed in. Scales used by apothecaries and small retail dealers do not need to be sealed so often. The present law makes it obligatory upon the persons using scales, weights, or measures, for the purpose of selling any goods or wares, to have them adjusted, sealed, and recorded upon the sealer's book at his office, and they shall thereafter be responsible for the correctness and exactness of the same.

Also, if any person shall sell, or expose for sale, any goods, wares, or merchandise, fruit, or other commodity whatsoever, by any beams, weights, or measures that have not been sealed, as provided by law, he shall for each offence forfeit a sum not exceeding ten dollars.

And whosoever sells by any other measures, weights, scales, beams, or balances than those which have been thus sealed, shall forfeit a sum not exceeding twenty dollars for each offence.

Many labor under a misapprehension in regard to the law, as it now stands, for the sale of fruits and vegetables. The following may be of some service: —

Extract from the General Statutes, Chap. 49, §§ 61, 62.

Sect. 61. The dry measure shall be the sole authorized public standard for measuring all fruits, vegetables, nuts, when the same are sold by measure. Whoever sells such articles by any other than dry measure shall forfeit a sum not exceeding ten dollars for every such offence.

Sect. 62. Chestnuts, walnuts, cranberries, and all other berries, when sold, shall be measured by the strike or level measure, in the same manner as flaxseed and other similar articles are measured.

It is believed that persons are using the wine or liquid measure instead of the dry measure in the sale of fruits, nuts, beans, and berries, which, as will be seen by the extracts above, is unlawful, and they are liable to a fine for each offence.

Schedule of City Property contained in the Sealer's Office.

One set Avoirdupois Weights.
,, Balance in Cabinet.
,, set Standard Dry Measures.
,, ,, ,, Wine Measures.
,, brass Yard Stick.
,, set Avoirdupois Weights in case (brass).
,, ,, Dry Measures (copper).
,, ,, Wine Measures (copper).
,, Yard Stick (wooden).
,, pair Try Scales in case.
Forty fifty-pound weights (iron).
One Drill Stock and Drills.
,, Hammer.
,, Mallet.
,, Vise.
,, Wrench.
,, Knife.
,, Spirit Level.
,, Screw Driver.
,, pair Nippers.
,, ,, Cut Nippers.
,, Brand, letter C.
,, ,, two letter C.
Three Stamps, letter C.
Two Cases.
One File.
One Punch.
Half bushel Flaxseed.
Small quantity of shot and lead.
One Charcoal Basket Measure in case.

Respectfully submitted.

ENOCH J. HOWLETT,
Sealer of Weights and Measures.

REPORT

OF THE

CAMBRIDGE WATER BOARD.

As required by the City Ordinance, the Cambridge Water Board herewith submit to the City Council their Eighth Annual Report: —

The net cost of the Water Works, to Nov. 30, 1871, as appears by our last Annual Report, was	$945,146.45
There has been expended for extension for the year ending Nov. 30, 1872	85,238.41
Making the cost of Water Works, Nov. 30, 1872	$1,030,384.86
The receipts for water rates for the year ending Nov. 30, 1872, were	$127,201.30
Receipts for same time in year 1871	111,782.65
Showing the increase for 1872 to be . . .	$15,418.65

The following statement will show in brief the entire transactions on account of the Water Works for the year ending Nov. 30, 1872: —

Received.

Total appropriations for extension account . . .	$250,000.00
Less amount transferred to "care and repair" and to "supply account"	7,500.00
Leaving balance to extension account . . .	$242,500.00

Amount brought forward	$242,500.00
Received from water rates	127,201.30
From supply account and shutting off and letting on the water	13,495.91
From sale of old iron, &c.	1,054.48
Balance of interest from the City Treasurer on Temporary Loan	2,629.32
Interest from the Sinking Fund	4,472.60
	$391,353.61

Expended.

For extension account	$85,238.41
,, care and repairs	24,513.14
,, supply account	16,429.49
,, interest on Water Debt to Nov. 30, 1872 . .	53,484.00
Amount of appropriation unexpended	157,261.59
Balance, showing gain in 1872	54,426.98
	$391,353.61

By the foregoing account it will be seen that the appropriation for extension account was . . .	$242,500.00
Amount expended	85,261.59
Leaving amount unexpended, and which lapsed into the City Treasury, Nov. 30, 1872 . .	$157,261.59

Against this unexpended amount of appropriation for the extension account contracts have been made and work commenced, upon which there will be due about as follows, say —

On contract for foundations, &c., at new engine-house	$17,500.00
On contract for new engine and boiler house above the foundations	44,900.00
On contract for conduit from deep water in the pond to new well-room	16,000.00
On contract for a new "Worthington pump" . .	18,000.00
On contract for new main pipe leading from the reservoir to North Cambridge	7,500.00
On contract for stone for foundations	3,500.00
Estimated cost of engine-house lot, and grading .	6,000.00
	$113,400.00

At the time the estimates were made up by the Water Board, and the amount of appropriation asked for, the water in the pond was unusually low for that time in the year, and it was deemed very important that a connection should be made as soon as possible with Little and Spy Ponds to increase our water supply, and also that we should improve the time of low water to remove from the pond a large amount of vegetable matter, which, being exposed to the sun, by decay and fermentation contaminated the water. For these purposes there was included in the estimates, —

For connecting conduit between the ponds	$30,000
For removing vegetable matter from pond	20,000

The copious rains which we had early in the season removed all fear of a short supply of water this year, and at the same time made it an unfavorable time to prosecute either of the proposed plans before named.

None of the money asked for, and intended for these purposes, therefore, has been used. The importance of this work still remains, and the delay in doing it can be only temporary. At some future time, when the stage of the water favors doing the work, we shall again ask for an appropriation for this purpose.

In connection with the subject of our water supply we would again call attention to our recommendation in our last Annual Report, from which we quote as follows : —

" We find there are other small sources of water supply in Middlesex County, which may be of great use to us if we could secure them. In view of the foregoing, and also to provide for the prospective wants of our rapidly growing city, we recommend the City Council to make application to the Legislature as follows : —

" *First.* For leave to raise the ponds above high-water mark, and to shut out the fish.

" *Second.* That we be permitted to take the water from such streams in this county (the right of which is not already granted to others) as we can bring to advantage to reinforce our present water supply."

By the former we shall be enabled to save and store in the ponds, when necessary, a large amount of water that otherwise

would run out, and by the latter we may secure a means of reinforcing our supply at some future time, when it may be much needed.

The following table will show the comparative rainfall during the past two years by months, and also the height of the water in the pond at the same time : —

	Rainfall. 1870–71. Inches.	Rainfall. 1871–72. Inches.	Above low-water mark. 1870–71. Inches.	Above low-water mark. 1871–72. Inches.
December	2.71	3.18	9	12.8
January	1.45	1.93	8.4	16
February	2.63	2.3	11.6	13
March	3.7	3.09	33	15
April	3.03	2.68	32.6	27
May	3.6	3.51	32	26
June	5.35	4.64	24	31
July	2.96	5.17	14.5	26
August	3.1	10.97	10	35
September	1.08	6.67	4	44
October	5.7	3.66	5	38
November	4.78	4.18	8	43
	40.09	51.98		

By this it appears that the amount of rainfall in 1872 exceeded that of 1871 by 11.89 inches, and also that the water in the pond at the end of the year was 35 inches higher in 1872 than in 1871. This additional amount of water in storage equals 175,000,000 gallons, and by reference to the Superintendent's Report you will see that, besides this large amount retained, there has been a steady outflow from the pond since September. From this statement it can be seen that we might store a large amount of water for use if we were permitted to raise the pond to meet our wants, as hereinbefore suggested.

A series of observations was made at the engine-house for the purpose of ascertaining the amount of water delivered at each revolution of the pump. As a result it was found that 300 gallons per revolution was the correct amount, instead of 320 gallons, as we had before calculated.

A comparison of the pumping this year with last year, after making up last year's pumping on the basis of 300 gallons, which is the amount we use in all our calculations now, would be as follows : —

Amount pumped last year, upon a basis of 320 gallons per revolution, as per last year's report . .	637,912,150
Less difference to equal 300 gallons	39,869,510
	598,042,640
Average amount pumped per day, 1871	1,638,473
Amount pumped this year, per record	593,492,156
Average amount pumped per day, 1872	1,626,006

Showing a decrease, on an average, of 12,467 gallons per day.

This decrease, while we have been constantly increasing the number of water takers, is accounted for in part by the fact that we are getting rid of nearly all the old decayed and leaky pipes, from which we have lost much in the past; and also from the fact that during the season we have had frequent rains, thus greatly reducing the amount of water used in watering streets and gardens.

Early in the season, in connection with the matter of providing a place for the new pump that had been contracted for, the subject of moving our pumping-engine house, and building our Water Works on a scale commensurate with the prospective wants of the city, came up for consideration. After a long and thorough canvassing of the whole matter, it was decided to remove; a piece of land was taken for the location, and $100,000 appropriated for the purpose of erecting buildings, with the necessary connections to accommodate three of Worthington's duplex pumping engines, with a united capacity of 15,000,000 to 20,000,000 gallons per day.

The season had well advanced before the appropriation was made for this purpose. No time was lost after that; and as soon as satisfactory plans were procured and adopted, work was commenced on the foundations, which has been steadily prosecuted under the charge of the City Engineer up to this time. Owing to the great amount of rainy weather during the fall season and the presence of quicksand in the soil, the work of getting in the new well-room has progressed slowly. But in face of all hindrances the main well-room is nearly done, a large part of the foundation walls are laid, and the buildings and chimney are contracted to be finished by August 1, 1873. We hope during the next year to have

this work substantially complete, with two pumps in working order, either one of which will be of sufficient capacity to supply the city with water for some years to come. Some progress has also been made in building the new conduit out into the pond. In the new well-room, and in laying this new conduit, we have gone four feet lower than the old conduit; and we also take the water where it is deep, and away from the prevailing currents in the pond, thus getting better water, while at the same time we make available an increased storage capacity, equal to 240,000,000 gallons in Fresh Pond alone.

In the judgment of this Board no water works can be considered complete until all the principal appliances for furnishing the supply are duplicated. The arrangements already made will furnish the necessary duplicate pumping power, and we now need another pumping main pipe leading from the engine-house to the reservoir, and also another distributing main pipe leading from the reservoir down through the city for nearly its entire length.

Several times during the past year we have been stopped on account of breakages in our pumping main, once for three days and nights, when nearly all the water was drawn from our reservoir before we could resume pumping. Had a fire occurred during this time requiring a large amount of water, we can hardly imagine the amount of damage that might have ensued. The experience of our neighboring city is a warning to us to provide all we can against a similar calamity in our midst. We cannot consider this matter too seriously.

To a certain extent the same difficulty might and has occurred in our distributing main from the reservoir. At present we have two, one twenty-four inch and one twelve inch. When an accident occurred, by which it became necessary to shut off the twenty-four inch main, the supply was reduced to a minimum, and complaints came from all parts of the city, and some of our largest takers in the lower part of the city were almost cut off from any supply. Had a large fire occurred at this time we should have been in great danger. Aside from the danger of fire the legitimate use of the water requires us to duplicate the supply main. The largest consumers in the city have already been seriously damaged by having the water cut off, from an accident to the only main supply that

would furnish them with the water they needed, and at the same time others suffered more or less from the same cause. To lay these large main pipes is expensive, and we thus call your attention to the importance of this subject, that if we should ask for a large appropriation for "extension account," to enable us to lay these large mains, you would understand the importance of the matter, and we shall have performed our duty in presenting it for your consideration.

Our experience has taught us that the most favorable time for the City to make contracts for its pipes is in the winter, and before the annual appropriations are made. After deciding what we shall need for the ensuing year, it is our intention to ask from you the right to make contracts for the pipes in anticipation of the appropriations; but no money will be needed before the usual time to pay on account of any such contracts.

For a detailed account of what has been done the past year, and the present condition of the Water Works, we would respectfully refer you to the Reports of the Water Registrar and the Superintendent, herewith transmitted, in accordance with the requirement of the City ordinance. We congratulate the City on the good condition of the works as they now are; and when the improvements already begun are completed, we think our Water Works, in point of efficiency and economy, will stand equal to any in the country, where the water is furnished by pumping.

We were gratified at the prompt action of the City Council in voting to put in a sewer in Concord Avenue and Vassal Lane, by which a large amount of surface drainage on the easterly side of the pond can be kept out of the pond and carried below the outlet into Alewife Brook, while at the same time we can properly drain the new pumping works that are being erected. The subject of protecting our water supply from the drainage around the pond is an all-important one, and appeals to the personal interest of every one who uses the water. The sewer already voted in will undoubtedly, in the end, be a part of a continuous one reaching entirely around the pond. As the borders of the pond become more thickly settled the necessity of this course will present itself more and more.

The movement now being made to annex to our city portions of the adjoining towns, so that the whole of Fresh Pond will come

within our borders, is an important one as bearing on the Water Works. If this should be accomplished, we then can make such improvements on the borders of the pond for our protection as may be required; and as all such improvements will naturally enhance the value of the surrounding property, the City will get the advantage of this increased valuation in taxation. This would particularly be the case if, as has been recommended, the City should build a driveway around the pond, which, while it protected our water interests, would at the same time open one of the most desirable locations for elegant private residences in the vicinity of Boston.

In closing our Report we wish to bear testimony to the general faithfulness of the persons employed by this Board, but especially to the untiring efforts of our Superintendent, who, by day and night, has devoted himself to the interests of the Water Works in all its departments, and we consider the City fortunate in securing his services in the position he occupies.

All of which is respectfully submitted.

J. WARREN MERRILL,
HENRY O. HOUGHTON,
ALVAN BLODGETT,
HENRY L. EUSTIS,
SAMUEL SLOCOMB,
GEORGE P. CARTER,
CHESTER W. KINGSLEY,

Cambridge Water Board.

REPORT

OF

THE WATER REGISTRAR.

WATER REGISTRAR'S OFFICE,
CAMBRIDGE, *Dec.* 1, 1872.

To the Cambridge Water Board: —

GENTLEMEN, — In conformity with the requirements of the City ordinance for the care and management of the Cambridge Water Works, the Water Registrar hereby respectfully submits his Report for the year ending Nov. 30, 1872.

Receipts.

Water rates	$127,201.30
Supply account for pipe, laying, and repairing . .	13,344.91
Chapman Valve Co., gates	189.60
Rent of house, Pipe yard (three months) . . .	37.50
Shutting off and letting on water	151.00
Walworth Manufacturing Co., old iron	827.38
Total cash receipts from all sources	$141,751.69

All of which has been paid into the City Treasury.

The increased amount of income for the financial year over the previous year is	$14,218.19

Expenditures.

The expenditures for the care and management of the Works for the year ending Nov. 30, 1872, have been as follows: —

For care and repairs	$10,959.76
For pumping service	8,716.94
For office expenses	4,836.44
Total amount	$24,513.14

The expenditures on the extension of the Works for the year ending Nov. 30, 1872, were	$72,238.41
The expenditure on supply account was	16,429.49

The following table exhibits the yearly revenue received from water rates, since the purchase of the Works by the City : —

From	April 28, 1865,	to	Dec. 1, 1865	. . . .	$32,367.19
,,	Dec. 1, 1865,	,,	1866	. . . .	40,073.27
,,	,, 1866,	,,	1867	. . . .	52,733.62
,,	,, 1867,	,,	1868	. . . .	63,747.42
,,	,, 1868,	,,	1869	. . . .	76,149.30
,,	,, 1869,	,,	1870	. . . .	92,606.95
,,	,, 1870,	,,	1871	. . . .	111,782.65
,,	,, 1871,	,,	1872	. . . .	127,201.30
					$596,661.70

The water has been shut off from the premises of water takers for non-payment of rates, one hundred and eleven times. Of this number seventy-five have been let on, leaving a balance of thirty-six still remaining off.

STATEMENT

SHOWING THE NUMBER OF FAMILIES, STORES, MANUFACTORIES, &c., SUPPLIED WITH FRESH POND WATER TO DEC. 1, 1872.

7758 Families.
750 Hand Hose.
538 Private Stables.
160 Stores.
78 Stationary Engines.
40 Offices.

40 Saloons.
29 Meat Markets.
27 School-houses.
24 Barber Shops.
23 Boarding Houses.
17 Greenhouses.
15 Bake-houses.
14 Soap Manufactories.
14 Blacksmith Shops.
13 College Buildings.
11 Livery Stables.
9 Churches.
8 Furniture Manufactories.
8 Fish Markets.
8 Machine Shops.
8 Billiard Halls.
8 Lumber Wharves.
7 Public Halls.
7 Horse Railroad Stables.
7 Club Rooms.
6 Printing Offices.
6 Banks.
6 Public Houses.
6 Carpenter Shops.
6 Coal Wharves.
6 Lodging Houses.
5 Stone Yards.
5 Police Stations.
5 Carriage Manufactories.
5 Paint Shops.
5 Cow Pastures.
4 Photograph Rooms.
4 Engine Houses
4 Slaughter Houses.
4 Iron Foundries.
4 Cooper Shops.
4 Harness Shops.
4 Post Offices.

4 Marble Works.
4 Planing Mills.
3 Glass Works.
3 Cigar Manufactories.
3 Nurseries.
3 Organ Factories.
3 Steam Railroad Depots.
3 Plumber Shops.
2 Cider Refineries.
2 Tin Ware Manufactories.
2 Chemical Works.
2 Club Stables.
2 Bacon Works.
2 Tallow Factories.
2 Private Schools.
2 Brush Manufactories.
2 Laboratories.
2 Steam Railroads.
2 I. O. of O. F. Halls.
2 Masonic Halls.
2 City Stables.
2 Confectionery Manufactories.
2 Aquariums.
1 Ice Tool Manufactory.
1 Coffin Manufactory.
1 Fruit Preserving Company.
1 Box Manufactory.
1 Cattle Yard.
1 Library.
1 Stereotype Foundry.
1 Almshouse.
1 Brass Foundry.
1 Brewery.
1 Boiler Manufactory.
1 Botanic Garden.
1 Brick Yard.
1 Currier Shop.
1 Color Manufactory.

1 City Hall.
1 City Wharf.
1 Cemetery.
1 Drain Pipe Manufactory.
1 Distillery.
1 G. A. R. Hall.
1 Gas Works.
1 Gymnasium.
1 House of Correction.
1 Laundry.
1 Lead Pipe Works.
1 Lard Works.
1 Museum of Comparative Zoölogy.
1 Lobster House.
1 Last Factory.
1 Ice Company.
1 Spring Bed Manufactory.
1 Hardware Manufactory.
1 Oil Factory.
1 Paper Collar Manufactory.
1 Rolling Mill.
1 Sausage Manufactory.
1 Sugar Refinery.
1 Swine Yard.
1 Grapery.
1 Bleachery.
1 Car Wheel Company.
1 Lock-up.
1 Frame and Moulding Manufactory.
1 Oiled Hat and Clothing Manufactory.

STATEMENT

SHOWING THE NUMBER AND KIND OF FIXTURES CONTAINED WITHIN THE PREMISES OF WATER TAKERS IN THE CITY OF CAMBRIDGE, DEC. 1, 1872.

9170 Faucets.
2277 Wash Bowls.
2142 Water Closets.

1203 Bath Tubs.
1108 Wash Tubs.
290 Slop Closets.
90 Yard Hydrants for Family Use.
83 Garden Hydrants for Hand Hose.
7 Private Fountains.

During the year, three meters have been applied and three removed from the premises of water takers, making the total number now in use eighty-one. They are attached to a variety of manufacturing establishments as follows: —

WHERE ATTACHED.	SIZE OF METERS.						
	⅝ inch.	¾ inch.	1 inch.	1½ inch.	2 inch.	3 inch.	4 inch.
Asa Gray			1				
Bay State Glass Co.					1		
Batchelder, Moore, & Co.				1			
Braman, Shaw, & Co.				1			
Boston and Albany Railroad Co.					1		
Boston and Lowell Railroad Co.			1		3		1
Boston Chemical Works					1		
Boston Rolling Mill					1		
Boston Stamping and Manufacturing Co.			1				
Boston Car Wheel Co.		1					
Beal & Hooper					1		
B. P. Clark & Co.			1				
Brazier & Whittemore			2				
Bay State Color Co.					1		
C. L. Jones			1				
Cambridge Gas Light Co.						1	
Cambridge Stamping Co.	1	1					
Curtis Davis				1			
Doe & Hunnewell				1			
Francis Draper & Co.		1					
F. Geldowsky				1			
George G. Page & Co.			1				
George Woods & Co.				1			
House of Correction.					1		
H. O. Houghton & Co.			1				
Henry Thayer & Co.					1		
Hancock & Greely				1			
H. M. Clark		1					
Holyoke House					1		
John K. Hodgdon					1		
James McIntosh			1				
John P. Squire & Co.		1			1		
John Wilson & Son			1				
John Reardon & Sons			1				
J. J. Gray			1				
James C. Davis			1				
James B. Kent			1				
Joseph Boynton	1						
James Lee			1				

WHERE ATTACHED.	SIZE OF METERS.						
	⅝ inch.	¾ inch.	1 inch.	1½ inch.	2 inch.	3 inch.	4 inch.
Leonard Cox		1					
Little & Brown			1				
Lyman Kinsley & Co.					1		
Mt. Auburn Cemetery				1	1		
Mason & Hamlin			1				
Middlesex Bleachery		1					
North, Meriam, & Co.					1		
New England Glass Co.					1		
O. S. Bullock			1				
Prospect House				1			
Revere Sugar Refinery					1		
Reversible Collar Co.					1		
Shawmut Iron Works		1					
Sylvester Tower			1				
S. M. Cofran					1		
St. Mary's Church					1		
Thayer Club		1					
T. S. Huckins			1				
Theodore Downing			1				
Union Glass Co.		1	2				
Union Railway Co.		6	2	2			
Woodbury & Co.					1		
Welch, Bigelow, & Co.		1					

As required by the City ordinance, all buildings supplied with Fresh Pond water have been visited during the year.

Respectfully submitted.

A. F. FIFIELD,

Water Registrar.

REPORT

CONCERNING

THE ACCOUNTS OF THE WATER REGISTRAR.

In Cambridge Water Board,
Dec. 7, 1872.

The Committee appointed to examine the accounts of the Water Registrar for the financial year ending Nov. 30, 1872, herewith submit the following

REPORT:

Your Committee have examined the books and accounts of the Water Registrar, and compared them with the vouchers, and find that the same are correct.

Respectfully submitted.

SAMUEL SLOCOMB,
GEORGE P. CARTER, } *Committee.*

REPORT

OF THE

SUPERINTENDENT OF THE WATER WORKS.

To the Cambridge Water Board: —

GENTLEMEN, — The undersigned respectfully submits the Eighth Annual Report of the Superintendent of the Water Works, which embraces a complete statement of all the work performed under his direction, for the year ending Nov. 30, 1872.

Pond.

In December, 1871, the gates at the outlet of the pond were raised, and remained opened until the twenty-eighth of the month, to allow the fish to escape from the pond. On the twenty-ninth of the month, the lower gates, on Alewife brook, at the Lexington Branch Railroad, were closed, to prevent the drainage from flowing back into the pond. In April and May, the gates at the outlet of the pond were open the entire time, to allow the fish to return to the pond. In September, the gates at the outlet of the pond were again opened, and remain open at the present time, during which time there has been a continual flow of water out of the pond. The following table shows the height of the water in the pond at the end of each month of the year.

December,	3 ft.	3	in.	below	the	highest	point	known.	
January,	3 „	1	„	„	„	„	„	„	„
February,	3 „	4	„	„	„	„	„	„	„
March,	3 „	2	„	„	„	„	„	„	„
April,	2 „	2	„	„	„	„	„	„	„
May	2 „	3	„	„	„	„	„	„	„
June,	1 „	10½	„	„	„	„	„	„	„
July,	2 „	3	„	„	„	„	„	„	„
August,	1 „	6	„	„	„	„	„	„	„
September,	0 „	9	„	„	„	„	„	„	„
October,	1 „	3½	„	„	„	„	„	„	,
November,	0 „	10	„	„	„	„	„	„	,

Engine House.

There have been no repairs made on the buildings during the year. The small well-room has been connected with the large one, and the small pumps have been overhauled and put in working order, and were started the first day of November, 1872, and the working of the large pumping engine was suspended at that time, for repairs, after being in constant use for four years. We have at the present time 564 tons of coal on hand. There were 593,492,156 gallons of water pumped the last year, consuming 1,522,650 pounds of coal. The average number of gallons pumped daily was 1,626,006, an average decrease of 12,467 gallons per day (estimating last year's pumping at 300 gallons per revolution, the same as this year's pumping is made up). The daily time of pumping for the first eleven months of the year averaged seven hours and fifty-eight minutes.

Force Main.

During the year, four leaks have been stopped, all of which were in joints. On the 25th of December, 1871, the Y branch under the railroad track, connecting both sets of pumping engines, broke, and was removed at that time. The large pumping engine was connected with a straight length of pipe. In November, 1872, this connection was broken, and another Y branch was put in to connect both sets of pumping engines. On the twelfth day of November, the Y branch again broke, while the working of the large pumping engine was suspended for repairs, and the small pumping engines were connected with a straight length of pipe.

Reservoirs.

No repairs of any importance have been made on either during the year. It will become necessary to make some repairs on the retaining wall on the westerly side of the large reservoir, another season.

Distribution Pipes.

Nearly five miles of pipe have been laid the present season, making the total length of pipe in the city at the present time about seventy-two miles. Five hundred and four leaks have been

stopped, as follows: One hundred and eighty in service pipes; ninety-seven in hose-bibb cocks; eighty-four in joints; forty-four in service cocks; twenty-six in fire hydrants; twenty-four in yard hydrants; twenty-three in stop and waste cocks; eleven in defective pipes; five in meters; three in gates; two broken pipes caused by settlement; two at wooden plugs in ends of pipes; and in one cast iron cap at end of pipe. During the year a new line of six-inch pipe has been laid the entire length of Webster Avenue, and seven fire hydrants, and all of the service pipes formerly connected with the three-inch cast iron pipe and the old aqueduct log have been connected therewith. The old wooden log is now entirely abandoned. In River Street, from Fremont Street to Riverside, a six-inch pipe has been laid, and the three-inch and four-inch pipes have all been taken up. This relieves that portion of the city, which has long needed a larger supply of water for manufacturing and other purposes, and also gives a better protection in case of fire. In Mellen Street, near North Avenue, where there was great complaint on account of the unfitness of the water for washing purposes, the three-inch pipe was removed, and found to be badly corroded, and four hundred and ninety feet of dipped four-inch pipe laid in its place. The same trouble was experienced at the Cambridge Laundry in Soden Street, and the three-inch pipe in that street was removed, and a four-inch pipe substituted. The three-inch and four-inch pipes in Columbia Street, between Broadway and Main Street, have been removed, and a twelve-inch pipe laid instead. The past winter was one of uncommon severity, the frost penetrating the ground to an unnsual depth; in many instances, main and supply pipes were frozen which had never been before. One hundred and twenty pipes were thawed out, which were found to be frozen in the street, and one hundred and two in the premises of water takers. All main and supply pipes frozen last winter have been lowered this season. In all cases where complaint has been made of the impurity of the water for want of circulation, the water has been let off from the ends of pipes, one hundred and forty-four times. In many cases these pipes have been extended and connected with other lines of pipes, remedying this trouble to a great extent.

Gates.

All needed repairs have been made on the gates the past season, and eighty-eight new ones have been added to the works. In addition to this, considerable expense and trouble have been incurred in raising or lowering the boxes, to conform to the frequent changes in the grades of streets. Six decayed boxes have been taken out and replaced by new ones.

Hydrants.

The hydrants are in a more satisfactory condition than in any previous year. Forty-five have been added during the year. Owing to laying larger pipes this season and to the removal of many of the small lines of pipes, the supply of water for fire purposes is more ample than it has been heretofore.

Meters.

Three meters have been applied to the premises of water takers, and three have been removed, making the total number now in use eighty-one. Of this number two are $\frac{5}{8}$-inch; seventeen, $\frac{3}{4}$-inch; twenty-six, 1-inch; twelve, $1\frac{1}{2}$-inch; twenty-two, 2-inch; one, 3-inch; and one, 4-inch size.

Drinking Fountains.

Three drinking fountains have been added the past season, making the total number fourteen. They are located as follows: —

North Avenue, corner of Walden Street.
Cambridge Common.
Harvard Square, opposite the store of Alfred Wood.
Brattle Square, opposite Brewer's Block.
Atwood's Corner, junction Cambridge and Hampshire Streets.
Cambridge Street, corner Fifth.
Bridge Street, junction of Cambridge
Court Street, between Main Street and Broadway.
Hampshire Street, junction Broadway.
Broadway, corner Norfolk Street.
Lafayette Square, front of Universalist Church.
Haymarket Square, opposite the store of J. A. Holmes & Co.

Haymarket Square, opposite the store of D. U. Chamberlin & Co.

Fort Washington.

Diameter in inches.	Number of Pipes.	Length in Feet.	Totals.	
			Number of Pipes.	Length in Feet.
2	4	713	4	713
1½	4	304	4	304
1¼	4	232	4	232
1	38	796	38	796
¾	381	27,798	381	27,798
Aggregate			431	29,843

The total number of supply pipes is 5,325

STATEMENT OF LOCATION, SIZE, AND NUMBER OF FEET OF PIPE LAID IN 1872.

IN WHAT STREET.	Diameter in Inches.	Feet of Pipe.
Avon Hill	6	675
Banks	6	401
Beaver	4	80
Beech	4	7
Belmont	4	248
Bennett	4	419
Blackstone	4	127
Bow	4	108
Brattle	6	205
Brattle	4	14
Channing	4	281
Cherry	4	7
Chestnut	4	322
Cogswell	3	36
Columbia	12	1897
Columbia	4	47
Clark	3	62
Crane	4	93
Dana	4	412
Davis	4	58
De Wolf	4	577
Dexter	6	155
Dock	6	285
Donnell	4	505
Eighth	4	7
Eliot	4	364
Felton	4	300
Fifth	4	10
Flagg	4	48
Fourth	4	13
Franklin	4	484
Fremont	6	524
Front	12	182
Front	10	128
Garden	6	166
Green	4	255
Hampshire	4	149
Harrison Avenue	4	119
Highland	6	342
Inman	6	125
Inman	4	254
Kent	4	258
Kinnaird	4	93
Magazine	6	105
Main	4	25
McCabe	4	64
Mead	4	222
Mellen	4	490
Mount Auburn	6	176
Mount Pleasant	6	706
New street off Ash	4	190
Ninth	6	116
North Avenue	4	7
Otis	4	36
Paper	6	85
Parker	4	195

STATEMENT OF LOCATION, SIZE, &c. — *Continued.*

IN WHAT STREET.	Diameter in Inches.	Feet of Pipe.
Perry	4	142
Pleasant	4	8
Plymouth	4	705
Potter	6	1000
Preston	4	360
Putnam Place	4	26
Reed	6	886
Reed	4	6
River	6	978
Sands	4	161
Second	4	12
Soden	4	309
South (Somerville)	4	120
Spring	4	6
Summer	6	300
Sidney	4	235
Temple	4	361
Temple	3	12
Thorndike	3	2
Tufts	4	308
Tuttle	6	196
Vine	4	355
Walden	20	84
Walden	8	356
Walden	6	465
Wallace	4	581
Walnut	6	7
Walnut Court	3	32
Warland	4	138
Washington Avenue	6	50
Water	4	9
Webster Avenue	6	3775
Western Avenue	6	391
Western Avenue	4	5
Western Avenue	3	10
Winthrop	4	117
Winthrop	3	53

GATES.

IN WHAT STREET.	Diameter in Inches.	Number.
Avon Hill	6	1
Auburn	4	1
Banks	4	2
Belmont	4	1
Blackstone	4	1
Brattle	12	1
Brattle	6	1
Brookline	4	1
Cambridge	10	1
Cherry	4	1
Chestnut	4	1

STATEMENT OF LOCATION, SIZE, &c. — *Continued.*

IN WHAT STREET.	Diameter in Inches.	Number.
Clark	3	1
Columbia	12	4
Columbia	6	2
Columbia	4	3
Columbia	3	1
Craigie	4	1
Dana	4	1
De Wolf	4	4
Dock	6	1
Donnell	4	1
Eliot	4	2
Felton	4	1
Franklin	4	2
Fremont	6	2
Front	4	1
Hampshire	4	2
Kent	4	1
McCabe	4	1
Mead	4	1
Mellen	4	1
Mount Auburn	4	1
Mount Pleasant	6	1
New street off Ash	4	1
North Avenue	4	1
Osborn	4	1
Parker	4	1
Perry	4	1
Plymouth	4	1
Preston	4	3
Prospect	4	1
Reed	6	1
River	6	2
Sands	4	1
Soden	4	1
South	4	1
South (Somerville)	4	1
Summer	6	1
Sidney	4	1
Temple	4	2
Thorndike	3	1
Tufts	4	1
Tuttle	6	1
Walden	20	1
Walden	12	1
Walden	8	1
Walden	6	5
Walden	4	1
Walden (check valve)	20	1
Warland	4	1
Wallace	3	1
Walnut	6	1
Water	6	1
Webster Avenue	6	7
Webster Avenue	4	5
Western Avenue	6	2
Western Avenue	3	1
Winthrop	4	1
Winthrop	3	1

STATEMENT OF LOCATION, SIZE, &c. — *Continued.*

BLOW-OFF PIPES.

IN WHAT STREET.	Diameter in Inches.	Number.
Channing	1½	1
Chestnut	1½	2
Felton	1½	1
Franklin	1½	1
Garden	1½	1
Green	1½	1
Highland	1½	1
Kent	1½	1
New street, off Ash	1½	1
Parker	1½	1
Plymouth	1½	1
Preston	1½	1
Sands	1½	1
Tufts	1½	1
Walden	1½	1
Walnut Court	1½	1
Western Avenue	1½	1
WASTE GATES.		
River (at Mill Pond)	6	1
Walden (at Vassal Lane)	6	1

RECAPITULATION.

84 feet	20-inch.
2,079 „	12 „
128 „	10 „
356 „	8 „
12,116 „	6 „
10,862 „	4 „
207 „	3 „

GATES.

2	20-inch.
6	12 „
1	10 „
1	8 „
29	6 „
51	4 „
6	3 „

BLOW-OFF PIPES.

18	1½-inch.

WASTE GATES.

2	6-inch.

STATEMENT

OF STOCK ON HAND EXCLUSIVE OF TOOLS AT PIPE YARD AND SHOP.

14 feet 36-inch pipe.
60 feet 24-inch pipe.
75 feet 20-inch pipe.
36 feet 16-inch pipe.
50 feet 12-inch pipe.
725 feet 10-inch pipe.
2,100 feet 8-inch pipe.
9,000 feet 6-inch pipe.
650 feet 4-inch pipe.
225 feet 3-inch pipe.
1 20 × 6-inch cross.
1 12 × 12-inch cross.
1 12 × 6-inch cross.
7 12 × 4-inch crosses.
2 8 × 6-inch crosses.
7 8 × 4-inch crosses.
20 6 × 6-inch crosses.
6 6 × 4-inch crosses.
23 4 × 4-inch crosses.
2 3 × 3-inch crosses.
2 6-inch offsets.
7 4-inch offsets.
1 24 × 20-inch T.
1 24 × 16-inch T.
1 24 × 12-inch T.
1 24 × 6-inch T.
4 20 × 12-inch T's.
3 20 × 6-inch T's.
1 12 × 12-inch T.
1 12 × 8-inch T.
6 12 × 6-inch T's.
2 12 × 4-inch T's.
4 10 × 10-inch T's.
2 10 × 6-inch T's.
3 10 × 4-inch T's.
4 8 × 8-inch T's.
9 8 × 4-inch T's.
16 6 × 6-inch T's.
12 4 × 4-inch T's.
3 3 × 3-inch T's.
3 12-inch caps.
11 8-inch caps.
2 6-inch caps.
6 4-inch caps.
2 24-inch sleeves, solid.
1 20-inch sleeve, solid.
1 16-inch sleeve, solid.
2 12-inch sleeves, solid.
3 10-inch sleeves, solid.
10 8-inch sleeves, solid.
9 6-inch sleeves, solid.
6 4-inch sleeves, solid.
9 3-inch sleeves, solid.
2 24-inch sleeves, clamp.
4 12-inch sleeves, clamp.
3 10-inch sleeves, clamp.
3 8-inch sleeves, clamp.
2 6-inch sleeves, clamp.
4 4-inch sleeves, clamp.
3 3-inch sleeves, clamp.
1 24 to 10-inch reducer.
4 12 to 10-inch reducers.
2 12 to 8-inch reducers.
4 10 to 8-inch reducers.
7 8 to 6-inch reducers.
2 6 to 4-inch reducers.
14 4 to 3-inch reducers.
4 24-inch ¼-bends.

1 24-inch $\frac{1}{16}$-bend.
1 12-inch $\frac{1}{4}$-bend.
2 10-inch $\frac{1}{8}$-bends.
2 10-inch $\frac{1}{16}$-bends.
4 8-inch $\frac{1}{8}$-bends.
3 6-inch $\frac{1}{4}$-bends.
3 4-inch $\frac{1}{4}$-bends.
1 24-inch gate.
1 16-inch gate.
2 12-inch gates.
5 10-inch gates.
3 8-inch gates.
18 6-inch gates.
18 4-inch gates.
4 3-inch gates.
12 large gate-frames and covers.
6 small gate-frames and covers.
6 large gate-boxes.
2 small gate-boxes.
12 hydrant boxes.
1,000 feet burnettized plank.

Meters.

4 2-inch Worthington.
1 $1\frac{1}{2}$-inch Worthington.
6 1-inch Worthington.
2 1-inch Navaro.
2 $\frac{3}{4}$-inch Navaro.
2 $\frac{3}{4}$-inch Ball & Fitts.
2 $\frac{3}{4}$-inch Harris.

Galvanized Pipe.

200 feet 2-inch.
200 feet $1\frac{1}{2}$-inch.
300 feet $1\frac{1}{4}$-inch.
150 feet 1-inch.
1,000 feet $\frac{3}{4}$-inch.

Fittings for Service Pipe.

45 2-inch couplings.
20 $1\frac{1}{2}$-inch couplings.
12 $1\frac{1}{4}$-inch couplings.
64 1-inch couplings.
75 $\frac{3}{4}$-inch couplings.
24 $\frac{1}{2}$-inch couplings.
94 $\frac{3}{4}$-inch couplings, right and left.
9 1-inch couplings.
3 $1\frac{1}{2}$-inch plugs.
12 $1\frac{1}{4}$-inch plugs.
24 1-inch plugs.
36 $\frac{3}{4}$-inch plugs.
24 $\frac{1}{2}$-inch plugs.
14 2-inch elbows.
10 $1\frac{1}{2}$-inch elbows.
24 $1\frac{1}{4}$-inch elbows.
30 1-inch elbows.
14 $\frac{3}{4}$-inch elbows.
30 1-inch street elbows.
18 $\frac{3}{4}$-inch street elbows.
4 2-inch nipples.
15 $1\frac{1}{2}$-inch nipples.
11 $1\frac{1}{4}$-inch nipples.
20 1-inch nipples.
100 $\frac{3}{4}$-inch nipples.
6 $\frac{1}{2}$-inch nipples.
20 $\frac{3}{8}$-inch nipples.

12 ¾-inch hose nipples.
5 brass hydrant spindles.
2 2-inch unions.
4 1½-inch unions.
18 1-inch unions.
20 ¾-inch unions.
50 ¾-inch lock nuts.
375 socket ends.
10 garden hydrants.
17 2-inch T's.
21 1½-inch T's.
12 1¼-inch T's.
57 1-inch T's.
184 ¾-inch T's.
16 ½-inch T's.
3 1½-inch crosses.
12 1¼-inch crosses.
12 1-inch crosses.
100 ¾-inch clips.
6 2 × 1½-inch bushings.
6 2 × 1¼-inch bushings.
12 2 × ¾-inch bushings.
5 1½ × 1-inch bushings.
9 1½ × ¾-inch bushings.
21 1¼ × 1-inch bushings.
19 1 × ¾-inch bushings.
19 ¾ × ½-inch bushings.
18 1-inch screw cocks.
10 ¾-inch screw cocks.
7 1½-inch female cocks.
10 1¼-inch female cocks.
23 ¾-inch driving cocks.
23 ¾-inch corporation cocks.
6 ¾-inch hose bibbs.
36 ½-inch hose bibbs.
12 1-inch air chambers.
39 ¾-inch air chambers.
20 ½-inch air chambers.
1 cylinder stove.
4 wagons.
1 pung.
2 horses.
3 sets harnesses.
2 tons old junk.
11 wheelbarrows.
2 benches.
39 draws for supply fittings.
35 feet chain.
7 pairs rubber boots.
2 hand carts.

2 dwelling-houses.
1 engine-house.
1 coal-shed.

Tools at Pipe Yard and Shop.

1 large hand pump.
50 picks.
30 shovels.
15 rammers.
7 crow-bars.
3 paving hammers.
4 trowels.
4 saws.
5 axes.
7 gate wrenches.
5 hydrant wrenches.
6 supply wrenches.
4 blow-off wrenches.
10 monkey wrenches.
12 pairs tongs.
2 sledge hammers.

1 drilling machine.
4 hydrant goose necks.
3 tool chests.
2 bench vises.
2 sets caulking tools.
7 lump hammers.
4 pipe cutters.
3 sets dies.
2 scroll plates and dies.
3 thawing pumps.
4 furnaces.
2 ratchets.
1 platform scale.
12 lanterns.
1 grindstone.
1 thawing stove.
1 boom derrick.
2 upright derricks.

Tools at Engine House.

2 globe lamps.
3 hand lamps.
3 lanterns.
6 lamp chimneys.
1 bench vise.
1 hand vise.
3 files.
3 screw wrenches.
12 iron wrenches.
19 socket wrenches.
2 gate wrenches.
3 die plates.
2 sets dies.
2 sets taps.
1 ratchet.
1 breast drill.
1 drill brace.
22 drills.
18 cold chisels.
10 caulking tools.
2 jack screws.
4 crow-bars.
1 sledge.
1 copper hammer.
1 hand hammer.
2 coal hammers.
1 forge.
1 anvil.
8 pairs tongs.
15 pairs pipe tongs.
2 oil-cups.
1 solder iron.
2 ladles.
1 differential block.
1 turn buckle.
1 carpenter's chest.
2 hand planes.
3 hand saws.
1 axe.
1 square.
1 drawing-knife.
2 chisels.
8 gouges.
3 bitt stocks.
10 bitts.
3 screw-drivers.
1 grindstone.
2 paint brushes.
1 set fire tools.
3 shovels.
1 spade.
3 hoes.
2 rakes.
1 prong hoe.

1 weeder.
1 pitchfork.
1 scythe and snath.
1 iron roller.
3 water-pails.
1 dust brush.
1 window brush.
2 whitewash brushes.
2 tube brushes.
4 ladders.
1 step ladder.
1 steam trap.
2 screens.
2 platform scales.

Stock at Engine House.

50 pounds bar iron.
50 feet pipe.
12 T's.
36 elbows.
40 nipples.
40 couplings.
4 unions.
2 globe valves.
1 pound solder.
30 pounds lead.
13 pounds Babbitt metal.
200 pounds bolts and nuts.
5 pounds washers.
9 pounds eye bolts.
1 air pump link.
1 rotary pump.
6 valve springs.
4 pounds sheet brass.
6 pounds screws.
20 pounds cut nails.
8 pounds white lead.
5 pounds brown paint.
10 oil-cans.
6 gallons kerosene.
20 gallons lard oil.
300 pounds tallow.
45 sheets rubber.
19 9-inch rubber valves.
4 5-inch rubber valves.
50 2½-inch rubber valves.
4 36-inch rubber gaskets.
2 pairs rubber boots.
20 pounds jute packing.
12 pounds hemp packing.
6 yards felting.
70 pounds Martin's packing.
50 feet rubber hose.
1 coal car.
1 wheelbarrow.
2 desks.
10 chairs.
3 spittoons.
4 mats.
564 tons Cumberland coal (2,000 pounds per ton).
3,000 pounds old iron.

A two-story dwelling-house has been built in the Pipe Yard on Auburn Street, and is occupied by one of the teamsters employed on the work at an annual rent of $150, and stalls have been built in a shed for the two horses employed on the work. The house

has been insured in the Cambridge Mutual Office for $900, for the term of five years. The insurance on the engineer's dwelling has been renewed in the same office for $2,500 dollars for five years. There was a dividend to our credit of $12.

Respectfully submitted.

S. W. DUDLEY,

Superintendent.

REPORT

OF

THE SCHOOL COMMITTEE FOR 1872.

The elaborate Reports presented by the Committee for several years, which have discussed the principal matters connected with our schools, render it unnecessary to make a lengthy statement at the present time. The Report of the Superintendent of Schools, and the accompanying documents, will furnish such facts and statistics as will be of interest to the public. The Committee therefore propose merely to make a review of the year, with such suggestions as are naturally connected therewith.

It has been a year of honest work, and the results have been to a good degree satisfactory. There have been vacancies in the School Board for a large part of the year. Some who have rendered valuable service, and who deserve well of our citizens for their patient and gratuitous labors, have removed from the city, and their help is lost. The Committee, with the disadvantage of lessened numbers, have endeavored to give careful attention to the work intrusted to them, and to invest in it their highest wisdom, using the lessons of their own experience and of that of other committees. They have had the faithful co-operation of the Superintendent in all their plans, and any Report would be sadly incomplete which did not recognize our dependence upon him for that oversight and guidance which our Schools need, and which cannot be required of men who are engaged in other callings. The unity of our school system and its continual necessities make it indispensable that we should have a man of special training, of wide observation, and of devotion to the work of superintendence.

The Committee are glad to acknowledge, also, the interest manifested by the teachers, and their readiness to carry out the policy and practice prescribed for the schools. Those members of the Board who have been for several years conversant with the schools will agree that there has been an advance in the character of the work done in them. The changes have not been many or violent, but they indicate a purpose to do the best work in the best way. Whatever hindrances exist will not be found in any lack of pains on the part either of the Committee or the teachers. The Committee are happy to testify to a general readiness on the part of the City Council to execute their plans. If they have asked much, it has been because much was needed. The long period when but little was done to improve the condition of our school-houses, or increase their number, has thrown upon the present time a burden which could well have been divided among many years. There are other calls to be made; to be pressed, if need be; and this will be done with confidence in the desire of the people to have their schools all they can be made. The past year has given us one grammar-school building, and two for primary schools. One or more houses should be added during the coming year. When we boast of an increase of population, we should not forget the demands which result from it. Besides new houses, there are old ones which should be immediately changed. The plan of former years, which made very large school-rooms with very small recitation-rooms adjoining, cannot too speedily become a thing of the past. The alterations which have been made already in three of the old houses, by which each teacher has a room of reasonable capacity under her charge, have shown their good effects; and the comparison of the old and the new systems will remove any lingering doubt. It would be of great benefit to the schools if members of the City Government would visit them from time to time, and form a judgment of their needs from personal observation. The School Committee will cheerfully welcome any official or unofficial examination of their work, and of the circumstances under which they are doing it, by those upon whom they are dependent for the means to build a house, or to set a pane of glass.

It has been found necessary to make some changes in the High School building. The increase in the number of scholars has

made more room needful. It was not thought expedient to enlarge the present house, which would be attended with great expense, and would mar the appearance of the building. It is not unlikely that the growth of the city will make it desirable to divide the school at no distant time. After mature deliberation it was decided, though with great regret, to ask for a division of the large hall, and for such incidental changes as would add to the number of rooms. This work has been done.

The teachers named in the last Report are still in the school, with the exception of one whose ill-health compelled him to resign; his place has been filled, and another female teacher has been added. The study of drawing, which during the year has been optional with the scholars, was pursued with very satisfactory results, and it has been decided to make this a required study. In order to produce uniformity through the school, the new method of pronouncing Latin, which now prevails in Harvard College, has been adopted. The Committee feel that the High School is now pervaded with an earnest and kindly spirit, and that it was never in better working order than at this time.

From the High School to the Primary Schools there has been a steady advance in the way of bringing in thought and casting out mere routine. More attention is given to the culture of the scholar's mind through his senses. There is less confinement to the study of books and to recitations from memory. The teacher is more true to the name, and is less a hearer of recitations. Books on natural science are in all our schools. Drawing is taught in all. Variety is given to the reading by supplementing the common readers with other books or with newspapers, that there may be more interest in this fundamental exercise, and that the pupils may learn to read by sight. These changes were ably set forth in the recommendations of the last Report, whose suggestions the Committee are trying to carry into practice.

It is understood that a series of volumes of the best English literature, for reading in schools, is now in course of preparation. Instead of the disconnected fragments which are now read by the scholars, they will have in these books complete works, whole essays, poems, historical narrations, and the like. Something besides mere facility in reading will thus be acquired, and an exer-

cise which now consists in the frequent repetition of broken selections, which soon become devoid of interest to the pupil, and after successive years are a burden to the teacher, will be now instructive, and by changes easily made, will offer a pleasing variety, stimulating to all minds.

The age at which scholars shall be permitted and required to attend school is now fixed at five years. There seems to be no good reason why we should not receive them at an earlier age. Many are taught at home; but when it is considered how many have no proper home training, but are left to the tutelage of the streets, at a time of life when in school good impressions might be made upon them, even if little was expected from them, and when they might be kept in a state of preparation for the duties to come; and when we add to this, that the school life of nearly all will end by their fifteenth year, it seems good economy to lay hold upon the children as soon as we can, adapting our methods to their condition. In the same line comes the fact that for two months in the summer our schools are closed. The teachers need the rest, and the scholars, who can be taken into the country, profit by the vacation. But it is a time of idleness, and often of crime with many who are left to roam the streets, with no friendly hand to guide them save that of the police. Our system seems to need vacation schools, which should be under other than our regular teachers, and in which the hours and methods of study should be adapted to the season. It is believed that a few schools of this character would be welcomed by many who cannot watch their children, and who dread to leave them to themselves.

It is a cause of great regret that only a small portion of the children who enter the Grammar Schools finish the course in them. The reasons for this are plain to those who know the needs of the families from which very many of the children come. To encourage a longer continuance in school, the Committee have decided to give a diploma to those scholars who shall complete the course of the Grammar School, and whose conduct shall have been satisfactory during the last year.

The whole matter of attendance upon school needs more light and care than it has received. It is still true that a vast number of children of a proper age are not to be found in school. The

Committee have taken some steps towards ascertaining the extent of this evil, and the remedy for it. No satisfactory result has yet been reached. They cannot but trust that in their efforts in this direction they will have the aid of the City Government, so far as the subject comes within its province. Some further provision should be made for habitual truants and stubborn offenders against school law. The Committee have brought this to the notice of the City Council, and a report has been made upon it, recommending that provision for such children be made in the building partially occupied as an almshouse. The recommendation seems wise, and it is hoped that it may be carried into action. If this project is carried out, it is, of course, designed that those who are in the building for their faults shall be separated from those who are there for their poverty.

During the year an addition has been made to the salary of the masters of the Grammar Schools. This was done in part, because it was difficult to secure new teachers of high qualifications at the old price, and in part because the present masters deserved to be better paid. Long service had been requited with a bare livelihood; and when age or sickness obliged one to retire, there were no earnings to support him, and no provision by which a grateful City could grant him a pension. The office itself has changed. The work of the master of a Grammar School has been somewhat modified of late years. The supervision of his school is more fully laid upon him; he teaches less, but directs the teaching more. This should give unity to the instruction in each school, and, in connection with the consultation of the masters among themselves and with the Superintendent, should give a substantial unity throughout the city. A position as difficult and responsible as this should be made as attractive as we can have it.

The Committee consider it very desirable that there should be a close sympathy between the public and their schools, founded upon personal visitation and accurate information. The criticisms upon the school work, and the various measures suggested for its management in the public prints from time to time, show a laudable interest; but the advice is often crude and impracticable, and the comment ill founded. It is the privilege and the duty of citizens to watch those who are administering their affairs, and aid them

in all ways. This will be done with most success through personal interviews with the Committee or the teachers, or with the Superintendent of Schools. It might be found a desirable change to have the examination of the schools conducted by persons selected from the community, in connection with the Committee. This would bring more persons in direct contact with the schools, and be another bond of connection with the public, while it would give the Committee the intelligent advice of those who had carefully inspected their work.

We close this Report with the conviction that our schools are steadily improving, and that they deserve, what will be readily granted, the sympathy and generous co-operation of all the people.

HENRY O. HOUGHTON, *Chairman ex officio.*
ANDREW P. PEABODY,
HENRY P. WALCOTT,
ALEXANDER McKENZIE,
EDWARD R. COGSWELL,
HENRY HINCKLEY,
CHARLES J. McINTIRE,
ANSON P. HOOKER,
AUSTIN J. COOLIDGE,
WILLIAM A. MUNROE,
GEORGE R. LEAVITT,
WILLIAM A. HERRICK,
PHILIP R. AMMIDON,
WILLIAM A. START,
} *School Committee.*

TABULAR VIEW

OF

THE PUBLIC SCHOOLS OF CAMBRIDGE,

JANUARY 1, 1873.

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1873.
High School,	Lyman R. Williston	$4,000	343
	William F. Bradbury . . .	2,500	
	John Orne, Jr.	2,000	
	Theodore P. Adams	2,000	
	Solon F. Whitney	1,800	
	Mary F. Peirce	1,000	
	Emma A. Scudder	800	
	Elizabeth M. Fessenden . . .	800	
	Hannah Gleason	800	
	Augusta L. Brigham	800	
	Olive E. Fairbanks	800	
Allston Grammar,	Benjamin W. Roberts . . .	2,500	572
	Lizzie B. Winnett	700	
	Emma F. King	700	
	Isabel E. Billman	700	
	Lucia E. Whiting	700	
	Susan H. Ricker	700	
	Sarah J. Hinckley	700	
	Hattie E. Keith	700	
	Georgie M. Barbour	700	
	Emma E. Perkins	600	
	Emily R. Pitkin	700	
	Emma A. Hopkins	500	
Harvard „	Aaron B. Magoun	2,500	582
	Catharine Richardson . . .	700	
	H. Augusta Dodge	700	
	Ada H. Wellington	700	
	Mary E. Wyeth	700	
	Lydia S. King	700	
	Susan F. Athearn	700	
	Louise D. Bullard	700	
	Margaret B. Wellington . .	700	
	Jeanie L. Richardson . . .	700	
	Margaret R. Hodgkins . . .	700	
	Eliza D. Fisher	700	
	Annie M. Leland	700	
Putnam „	Francis Cogswell	2,500	354
	Sarah M. Burnham	700	
	Anna B. Josselyn	700	
	Maria E. Spare	700	
	Lizzie A. Winward	700	

TABULAR VIEW OF THE PUBLIC SCHOOLS. — *Continued.*

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1873.
Putnam Grammar,	Minnie E. Metcalf	700	
	Ella R. Grieves	700	
	Sarah C. Carleton	700	
	Addie Stone	700	
Shepard ,,	Daniel B. Wheeler	2,500	412
	Emma M. Taylor	700	
	Sara J. French	700	
	Mary C. Cook	700	
	H. Estelle Varney	700	
	Sarah A. Rand	700	
	Julia H. Osgood	700	
	Henrietta F. Harris	700	
	Cora M. Wheeler	500	
	Harriet L. Hayward	700	
Thorndike ,,	Ruel H. Fletcher	2,500	385
	Anna W. Averill	700	
	Eunice B. Dyer	700	
	Martha A. Martin	700	
	Ella W. Clark	700	
	Ruth H. Faxon	700	
	Jeanie A. Norris	700	
	Mary E. Nason	700	
	Ellen N. Parker	700	
	Fanny Allen	500	
Washington ,,	Daniel Mansfield	2,500	492
	Lucy A. Downing	700	
	Adeline M. Ireson	700	
	Catharine P. Green	700	
	Abby M. Webb	700	
	Adelaide A. Keith	700	
	Adelaide A. Keeler	700	
	Emma F. Veazie	700	
	Hattie T. Nealley	700	
	Julia P. Humphrey	700	
	J. Abbie Hodgkins	700	
	Dora Puffer	700	
Webster ,,	John D. Billings	2,500	528
	Eliza K. Brackett	700	
	Lucille C. Bancroft	700	
	Jane Dallinger	700	
	Louise C. D. Harlow	700	
	Gertrude A. Hyde	700	
	Esther F. Hannum	700	
	Susan E. Merrill	700	
	Eliza E. Williams	700	
	Hattie E. Warfield	600	
	Dora L. Metcalf	700	
	Nellie I. Crafts	700	
Boardman Primary	Mary F. Emerson	700	347
	Mary F. Stewart	700	
	Mary Agnes Lewis	700	
	Sarah E. Stewart	700	
	Ada W. Baker	700	
	Fanny A. Cooke	700	
	Nettie Sargent	700	

TABULAR VIEW OF THE PUBLIC SCHOOLS. — *Continued.*

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1873.
Boardman Primary	Augusta L. Baleh	600	
Bridge „	Elizabeth E. Dallinger	700	82
	Emily C. Dallinger	700	
City „	Etta S. Adams	700	32
Dana „	Abby A. Lewis	700	101
	Maria F. Williams	700	
Dunster „	Sarah B. Waitt	700	184
	Susan E. Wyeth	700	
	Mary L. Bullard	700	
	Mary E. Smallidge	700	
Felton „	Juliet F. Sumner	700	191
	Emma B. Alley	600	
	Ella L. Lynes	700	
	Lizzie C. Capen	500	
Gannett „	Sarah J. A. Davis	700	195
	Luey C. Wyeth	700	
	Annie F. Harding	700	
	Estelle J. Freneh	600	
Gore „	Harriet A. Butler	700	405
	Franees E. Pendexter	700	
	Carrie F. Noyes	700	
	Aliee J. Winward	600	
	Martha J. Avery	700	
	Emma R. Knights	600	
	Mary E. Hartwell	700	
	Addie M. Bettinson	500	
Harvard „	Helen J. Ward	700	108
	Ellen A. Cheney	600	
Holmes „	Marianne M. Webb	700	111
	Euniee W. Field	700	
	Julia H. Hale	700	
Mason „	M. Lizzie Evans	700	100
	Martha E. Deane	600	
Otis „	Abby S. Taylor	700	375
	Lydia A. Whiteher	700	
	Susan M. Pendexter	700	
	Martha H. Butler	700	
	Ellen N. Pike	700	
	Luvia Goodnow	700	
	Annie Knapp	700	
	Emma C. Barrett	700	
Putnam „	Nellie F. Ball	500	57
Quiney „	Charlotte E. Jewell	700	105
	Helen E. Morey	700	
Reed „	Luey T. Sawyer	700	196
	Evelyn A. Sawyer	700	
	Martha C. Diekman	700	
	Elizabeth A. Tower	700	
Sargent „	Anna M. Harrod	700	164
	Frances J. Harrod	700	
	Helen J. Kelley	700	
	Priscilla L. Lothrop	700	
Willard „	Mary Ann Tarbell	700	418
	Mary E. Sawyer	700	
	Anna S. Lamson	700	

TABULAR VIEW OF THE PUBLIC SCHOOLS. — *Continued.*

Name of School.	Teachers.	Salary.	No. of Scholars, Jan. 1, 1873.
Willard Primary,	Susan M. Cochrane	700	
	Kate M. Lowell	700	
	Fanny E. Cooke	700	
	Amelia Wright	600	
	H. Flora Hannum	600	
Wyman „	Fanny E. M. Dennis	700	111
	Charlotte A. Ewell	700	
	Adelia Dunham	700	
Training School,	Anna C. Sullivan	1,000	183
	Emma F. Munroe	800	
	M. Etta Arkerson	700	
	Ella C. Whitney	700	

TEACHER OF SINGING, — Nathan Lincoln . . $2,500
TEACHER OF PENMANSHIP, — Alvah C. Smith . 1,000

SUMMARY.

Number of Pupils in High School	343
„ „ „ „ Grammar Schools	3,325
„ „ „ „ Primary Schools	3,465
	7,133

COST OF INSTRUCTION.

High School	$17,300	for each pupil,	$50.43
Grammar Schools	66,400	„ „ „	19.97
Primary „	50,700	„ „ „	14.63
Music	2,500		
Penmanship	1,000		
	$137,900	„ „ „	$19,33

Number of pupils belonging to Public Schools, Jan. 1, 1873	7,133
„ „ „ „ „ „ „ Jan. 1, 1872	6,840
Increase during the past year	293

Increase of pupils, 1860	272
„ „ „ 1861	172
„ „ „ 1862	262
„ „ „ 1863	226
„ „ „ 1864	200
„ „ „ 1865	58
„ „ „ 1866	243
„ „ „ 1867	286
„ „ „ 1868	330
„ „ „ 1869	20
„ „ „ 1870	296
„ „ „ 1871	357
„ „ „ 1872	293

Number of Schools	27
„ „ Teachers	165

REPORT

OF

THE SUPERINTENDENT OF SCHOOLS.

To the School Committee of Cambridge : —

GENTLEMEN, — The close of another year renders it necessary for me to present my Annual Report. This Report can have no value beyond giving to members of your Board, and to other citizens who may take the trouble to examine it, a brief account of the schools for the current year. Those by whom the public schools are maintained have a right to know what we are accomplishing in the direction of public school education, and our Annual Reports ought to furnish such information.

In addition to the valuable table arranged by the Secretary of the Board, your attention is called to the following

SUMMARY OF STATISTICS FOR THE SCHOOL YEAR ENDING DECEMBER 31, 1872.

I. POPULATION.

Population of the city (estimated)		45,000
Number of children in the city between five and fifteen years of age, May 1, 1872 . . .	8,260	
Number May 1, 1871	8,247	
Apparent increase for the year	13	

II. SCHOOLS.

1 High School.
7 Grammar Schools.
19 Primary Schools.
6 Evening Schools.
1 Evening Drawing School.

Whole number of Day and Evening Schools 34

III. SCHOOL-HOUSES.

For the High School	1
For the Grammar Schools	7
For the Primary Schools	17

IV. TEACHERS.

Number of teachers in High School	11
Male teachers, 5 ; female teachers, 6.	
Increase for the year	2
Number of teachers in Grammar Schools	79
Male teachers, 7 ; female teachers, 72.	
Increase for the year	6
Number of teachers in Primary Schools	74
Increase for the year	2
Number of teachers in Evening Schools	19
Male teachers, 6 ; female teachers, 13.	
Whole number of teachers in Day Schools, including teacher of Music	165

V. PUPILS.

Whole number of pupils registered in the Day Schools during the year	9,108
Average whole number of pupils belonging to the Day Schools during the year	6,542
Ratio of the average whole number of pupils belonging to the Schools to the population of the city	.145
Ratio of the average number of pupils belonging to the Schools to the school population	.792
Average daily attendance of pupils in all the Day Schools	5,932
Average per cent. of attendance in all the Day Schools	90.7
Average whole number of pupils belonging to the High School	291
Average daily attendance in High School	279
Per cent. of attendance in High School	95.9
Average whole number of pupils belonging to Grammar Schools	3,027
Average daily attendance of pupils in Grammar Schools	2,774
Per cent. of attendance in Grammar Schools	91.6
Average whole number of pupils belonging to Primary Schools	3,224
Average daily attendance in Primary Schools	2,879
Per cent. of attendance in Primary Schools	89.3

Whole number of pupils belonging to Evening Schools	343
Average attendance in Evening Schools	190
Number of pupils over fifteen years of age in the Day Schools	550
Number of pupils admitted to Grammar Schools, July, 1872	809
Number of pupils graduated from Grammar Schools	156
Number of pupils admitted to High School	165
Number of pupils graduated from High School	39
Whole number of Private Schools	19
Number of Pupils in Private Schools	543

VI. FINANCES.

Assessed value of real and personal estate, May, 1872	$55,248,350.00
Total expenditures from the appropriations, for the year ending Nov. 30, 1872	1,284,314.34
Cost of instruction in the Public Schools	133,497.76
Care and repairs of school-houses	33,106.64
Amount expended for new school-houses and alterations	65,385.74
Incidental expenses for school purposes	3,716.51
Total expenditures for all school purposes	235,706.65
Ratio of expenditures for school purposes to the total expenses of the city	.183
Ratio of appropriation for school purposes to the valuation of 1872	.00426

APPOINTMENT OF TEACHERS.

In comparing the present list of teachers with that of one year ago, we find that many changes have occurred. During the year twenty-eight permanent appointments have been made in the different grades.

Early in the year, Mr. Alvah C. Smith, for so long a time master of the Webster Grammar School, was compelled by failing health to withdraw temporarily from the school. He was granted leave of absence until the beginning of the term in September, when, it was hoped, he would be able to resume his duties. Such expectations, however, were not realized. His continued illness rendered necessary the appointment of a successor, and for this position Mr. J. D. Billings, of Jamaica Plain, was unanimously chosen.

Dr. Smith had been connected with our schools for many years. He came to Cambridge in August, 1845, to take charge of the Mason School, then a small Grammar School of about thirty pupils. He was transferred to the Webster School, March 7, 1853, upon its organization, and remained its Principal until the present time, — a period of nineteen years. Thus for more than a quarter of a century he filled a most important place in this community; and it is not too much to say, that he was ever found earnest and faithful in the discharge of his responsible duties.

One teacher has died during the year, — Miss Isabel B. Merrill, of the Webster Grammar School. Miss Merrill was recognized as a most excellent teacher. She possessed in an unusual degree those qualities which are indispensable to the highest success.

It is a matter of no slight importance to have appointed, within the year, nearly thirty teachers to positions in this city; for the present and future condition of the schools depends very largely upon the fitness of the teachers thus chosen for the work committed to their hands.

That the wisest choice has in every instance been made in selecting so many teachers will not be claimed; but it is true that great care has been exercised, and it is believed that results hereafter will show that a large majority of those appointed were worthy of the confidence placed in them by your Committee.

SCHOOL-HOUSES.

But few important changes have been made in the school accommodations since the beginning of the year. Three structures then in process of erection have been completed, and are now occupied. The Harvard School-house was finished in February, and was dedicated with appropriate ceremonies.

The building is in the form of a parallelogram, its extreme length being 96.6 ft., and its extreme width 92 ft. It consists, in brief, of a basement and two stories above, and a third story in the mansard roof. The exterior is of the best of pressed brick, laid in dark mortar, relieved with sand-stone dressings about the door and window openings. The basement, ten feet in height, is paved throughout, and is occupied by the heating apparatus, the water closets, and sinks for the scholar's use, and private closets

for the use of the teachers. From the principal entrances on the north and south side access is gained to the main hall by an ascent of eight steps. The entire width of this hall is twenty-seven feet; from it, the visitor gains admission at once to the school-rooms of the first floor, six in number, each measuring 28 by 30 feet. In connection with each school-room is a scholars' dressing-room, and, in addition to these, are teachers' dressing-rooms to four of the school-rooms. Access to the second story is obtained by an ample flight of stairs at each end of the hall. The arrangement is similar to that of the first floor.

The upper story contains a hall for public exercises, 50 feet long by 36 feet in width, the stage containing an area of 280 square feet, not being included in these dimensions. In the rear of the stage is an apartment 20 ft. by 28 ft. The four corners of this story are occupied by school-rooms, two of which are 17 ft. by 27.6, and the others 29.6 by 27.6, each provided with its dressing-room. All of the inside finish above the basement is of clear bright chestnut. The school-rooms and audience-hall are provided with black-boards, put up by the American Tablet Company.

It was the design of the Committee on Public Property, under whose direction the plans were prepared, to produce a structure which, in its interior arrangements and capacity, would provide ample accommodations at the least possible expenditure of the public funds. The building was erected with these ends in view strictly in accordance with the designs of the architects and supervisors, Messrs. Ryder & Harris, in a thorough and substantial manner, at a cost of about $56,000, and with an entire cost, including land, fences, paving of the yards, heating apparatus, furniture, &c., of about $80,000. The contractors, Messrs. Hancock & Greeley, in connection with the sub-contracting masons, Messrs. Paul & Roberts, are deserving the highest praise for the skilfulness and fidelity with which they performed the work.

The Gore Primary School-house, in East Cambridge, has been occupied since May 22. This is a brick structure, three stories in height, with a well-arranged basement, large halls, and pleasant rooms. The upper story is unfinished, but can be arranged for school purposes whenever needed. There are at present in this school four hundred and five pupils.

The remaining building completed is one of wood, on Spruce Street, North Cambridge, and named the Wyman Primary. It is a pleasant building of four rooms, and accommodates two hundred and twenty-four pupils.

Some changes have recently been made in the High School building, by which additional accommodations have been secured to meet the demands for more room.

These are some of the improvements of the year; others are still demanded. The Willard Primary in Ward Four has been crowded during the year, and the demand for relief is urgent. The third story is unfinished, and the natural suggestion is that this be divided into convenient school-rooms corresponding to the rest of the building. The only objection to this is, that by this course a very large number of primary pupils will be brought together; but as this was a contingency contemplated when the building was erected, it is, perhaps, too late to raise objections on that score.

An earnest effort was made early in the year to secure the remodelling of the Allston and Webster Grammar School-houses, but without success. The matter will be pressed again the coming year, and there is good reason to hope that it will commend itself to the City Council as a measure of great importance.

The Sargent School-house, also, with some repairs, involving by no means a large expense, would become quite a convenient building.

With the present rapid increase of population in the city, we shall need, on an average, at least one additional school-house each year. Still, it seems very clear that the appropriations the coming year should be for the improvements already indicated, rather than for new buildings.

The amount appropriated for care and repairs for the year was $40,000. The amount expended was $33,106.64. Of this sum about one-third was for fuel, and the balance was for school furniture, care of houses, repairs and materials, books and stationery, &c. We shall need a larger expenditure the coming year, in order that we may have a more efficient care of school-houses, and that the yards, out-buildings, and general surroundings of the school-houses may be put in a fit condition. Several yards should be paved, needful repairs in school buildings should be promptly

made, and, in fact, the general care of school property should be such as would be exercised by any wise citizen in the management of important private interests.

Before leaving this subject, allusion should be made to the uniform kindness and courtesy which have at all times been shown by the Chairman of the Committee on Public Property. He will receive the sincere thanks of all who have been brought into official relations with him.

NON-ATTENDANCE AND TRUANCY.

By turning to the table of statistics, it will be seen that the whole number of different pupils registered in the schools for the year was 9,108; the *average number* actually belonging for the same time was but 6,443; while the average *daily attendance* was only 5,831. Statistics are often notoriously inaccurate, but it is believed that the above figures are approximately correct. Now if we compare the actual daily attendance upon the schools of pupils under fifteen years of age, with the number of children of legal school age in the city, as returned by the Assessors, it will become apparent that the schools are suffering immensely from the evils of non-attendance. Neither is this evil peculiar to our city. Much time in educational gatherings has of late been spent in discussing the possible remedies for that which is recognized as the weakest point in our educational systems. The general conclusion has been that we need more stringent laws regulating attendance; and one year ago the Massachusetts State Teacher's Association passed a formal vote urging upon the Legislature the importance of passing a law requiring children between certain ages to attend school the entire time in which the public schools are in session. But we have as yet no such law, and that which is now our only resource is almost a dead letter. I have yet to learn of the prosecution of any person for failing to comply with the statute requiring three months' attendance, and six weeks of that time consecutive. But without wasting time in discussing imaginary schemes, or in informing legislators of their duty upon this subject, it does seem proper to raise the question whether we are doing all in our power to secure a satisfactory attendance in our schools. Cannot something more be done, even under the

present unsatisfactory law? Is it not practicable to have a few prosecutions of parents, who, in defiance of law, are withholding from their children the education to which they are entitled?

There is another point worthy of consideration. Your regulation regarding tardiness and absence declares that "no pupil shall be admitted after the hour of commencing, without a satisfactory excuse; and all absence must be satisfactorily accounted for. . . . If any pupil shall be absent from school for the space of one week, at one time, he shall cease to be considered a member of the school, and the teacher, if he sees sufficient reason for so doing, may decline to readmit him, without a written permission from one of the Sub-Committee."

Is this the best possible rule on this subject? In regard to tardiness, it is a fact that in most cases there is no *satisfactory* excuse, and we might as well recognize this truth. Absences occur sometimes when there is, but more frequently when there is not, a satisfactory reason; but whether the excuse be a good one or not, it is well to have it understood that it is not necessarily satisfactory, whenever the parent puts upon paper the well-known words "please excuse," &c.

In place of the regulation which I have quoted I suggest the adoption, in substance, of the following: If any pupil shall be absent six half days in one month, except by reason of sickness, or shall be tardy three times in one month, he shall cease to be a member of the school until restored by a written permit from the Sub-Committee or Superintendent. Such a regulation would put this matter of absence and tardiness in a more definite shape, and would do much to improve the attendance in our schools.

In addition to the evils of non-attendance, for which parents are mainly responsible, we have to contend with truancy and habitual absenteeism. Five truant officers are annually appointed to look after "habitual truants, children wandering about in the streets, . . . having no lawful occupation or business, not attending school, and growing up in ignorance." For the best success in the discharge of the delicate and responsible duties of a truant officer, peculiar qualities are demanded; and it can safely be said that most of our officers are admirably adapted to their positions, and are doing a good work. But serious obstacles stand

in the way of entire success. The Almshouse, the place to which convicted truants are now sent, has been regarded as so unsatisfactory, that a communication was sent by your Board to the City Council, requesting that body to make such arrangements as would enable this City to send truant children to the School for Juvenile Offenders, in Lowell. This communication was referred to the Committee on Public Instruction; and that Committee ordered a hearing upon the subject. The general position assumed by the School Committee in that hearing, and the grounds for the charges which were preferred, can best be learned from the Report of the Committee on Public Instruction, as made through its chairman, Alderman Snow; and hence I take the liberty to quote from it.

He says: "The City ordinance now in force designates the place for commitment of truant children. The proposition to substitute for that institution the institution at Lowell, is suggested on account of the unfitness and insufficiency of the accommodations at the Almshouse for the suitable care and custody of such offenders. The building is large and has an abundance of room, but it affords no facilities for separating the inmates into different classes, — these all now constitute one family, and commingle as such. The children, however innocent and susceptible, are thrown into daily contact and association with the adult persons, however vile and depraved, committed there as petty criminals or as paupers, and are constantly exposed to the influences of the immoral and evil-minded among them. This there is now no possible means of preventing; and in the case of these juvenile offenders, there is good reason to believe that the evil of the remedy produces results as bad as the evil of the offence to be remedied.

"The means of detaining offenders at the Almshouse also appear to be insufficient, and there are complaints of many escapes. Hence, the School Committee assert, there exists an unwillingness on the part of the judicial authorities dealing with cases of truancy, to commit to the Almshouse, and a corresponding lack of diligent effort to check truancy by arrest and complaint on the part of the police. The laws and ordinances on the subject are not enforced with vigor, and it appears that with the present arrangements the habitual truant is now more likely to escape from, than to suffer the necessary and salutary discipline of, wholesome restraint which

the law intends to provide for him. Our City ought not to permit this condition of affairs to continue. For truancy is the sure seed of crime; it has been recognized and dealt with as such, in the Legislation of our Commonwealth, from the earliest times to this day. . . . It appears to the Committee, from some consultation with a portion of the Board of Overseers, that such alterations in the Almhouse as would remove the objections to which allusion has been made are practicable, and, if practicable, are desirable. With such change in the building, and the appointment of an assistant charged with the special duty of caring for juvenile inmates, our City can control an institution of its own as creditable to its reputation as is the institution at Lowell to that city."

The report closes by recommending the adoption of the following *order:* —

"ORDERED, That the Committee on the Almshouse be instructed to ascertain and report upon the practicability of making such alterations in the Almshouse as shall admit of the safe and suitable care and custody of juvenile offenders therein, separate from the adult inmates, with power to procure plans and estimates, — the expense thereof to be charged to the appropriation for incidental expenses."

Both the report and the accompanying order were referred to the next City Council, and it is earnestly hoped that prompt action may be taken in the matter.

Allusion was made in my last Report to the fact that the law of 1866, making provision for neglected children, — those who are sufferers "by reason of the neglect, crime, drunkenness, or other vices of parents, or from orphanage," — had never been adopted by this City.

In February last an *order* was passed by your Board, calling the attention of the City Council to this matter, and subsequently a hearing was held; but no action was taken. The one obstacle seemed to be the want of any suitable place to which these unfortunate children could be sent. The only place available was the Almshouse; and it need not be said that this was regarded as entirely unfit for the purpose. And so the matter stands as it did one year ago. From my own observation, and from information derived from trustworthy sources, I am convinced that there are

many children in this city who are in danger of hereafter leading idle, dissolute, and worthless lives, because now denied the care which the State has made it possible for them to receive, but which we are still withholding from them.

PRIMARY SCHOOLS.

The following table gives the general statistics of each Primary School for the year, including the number of pupils sent to the Grammar Schools : —

Primary Schools.	Whole No. registered.	Average No. belonging.	Average daily attendance.	Per cent. of attendance.	Number sent to Grammar Schools.
Boardman	566	326	293	89.7	99
Bridge	127	72	64	88	16
City	52	26	25	93.6	
Dana	126	90	82	91	25
Dunster	253	169	144	85	49
Felton	246	151	131	86.2	35
Gannett	304	178	159	89.5	33
Gore	563	372	332	89.1	82
Harvard	112	75	73	97	15
Holmes	189	126	112	88.5	32
Mason	160	95	82	86.6	32
Otis	631	373	336	90	91
Putnam	100	53	48	88.6	
Quincy	131	84	72	85.3	21
Reed	289	202	188	92.7	39
Sargent	239	164	153	93.3	59
Willard	556	383	337	88	76
Wyman	195	115	97	84.4	58
Training School	276	170	151	88	47
Totals	5,115	3,224	2,879	89.3	809

In examining the above table it will be seen that marked differences exist in the percentages of attendance in the different schools ; but it should be borne in mind that frequently the difference is owing to causes entirely beyond our control. Still, it is unquestionably true, that the earnest and persistent efforts of teachers in the matter of attendance have their reward as surely as in other departments of school work.

Very few changes, either in the course of study for these schools, or in their organization, have occurred during the year. Neither

does there seem to be much occasion for legislation in either of these directions. School systems are by no means perfect; and yet the fault, if there be a fault, is generally not so much with the system as with the means and agencies by which we attempt to adapt it to the wants of those for whom it is designed.

Much is now required of a teacher of a primary school. She should be able to control easily, winning obedience rather than enforcing it; she should understand the laws both of the physical and mental growth of the child, that she may do no violence to the one or the other. She should be able to make the school-room attractive, that the pupil may not, as often happens, acquire a dislike for school which years cannot remove. Let the teacher, so far as possible, study the special nature of each child, that she may adapt her methods to his peculiar wants; for our school systems are necessarily hard and inflexible, and this should be neutralized by the excellence of the instruction which each pupil shall receive. Let the teacher strive to create in the child a love for learning; for the work of education consists chiefly in giving a thirst for knowledge, and in teaching the means of gratifying it. It is still too often forgotten that we are chiefly indebted to correct habits of observation for any aquirements we have made; but such is the case, and hence the importance of cultivating the perceptive faculties. All the knowledge of material things must come through the senses; and long before the child enters the school-room his education in this direction begins. In the acquisition of language, too, he makes wonderful progress in the few years of his life previous to entering school, but not unfrequently when he becomes a pupil his growth in this direction is dwarfed and stunted by the unskilfulness of those in whose care it is his misfortune to be placed. In this subject of *language*, it is universally conceded that great weakness exists throughout all the grades of our schools.

With the design of giving some aid in this direction, so far as regards the Primary Schools, that most excellent juvenile magazine, "The Nursery," has been placed in every school-room. It is expected that it will be found a valuable acquisition.

We have also just ordered a set of Mason's National Music Charts for each of the first classes of the Primary Schools, which cannot fail to be of much assistance in the teaching of music in this grade.

In the last Annual Report, attention was called to the excellent features of Dr. Leigh's phonetic system of reading. This system has been taught in the Training School since its establishment, and always with the best results. In view of the fact that this method of teaching reading has met with such success wherever it has been tried, both in this city and elsewhere, would it not be well that the various sub-committees should be authorized by the Board to introduce it into the schools under their charge in such cases as they may deem advisable?

In concluding this topic, it can safely be said that a large majority of our primary teachers are admirably adapted to the positions which they hold, and that many of our Primary Schools well deserve the reputation of being models in their grade.

How shall all be brought to the same high standard?

GRAMMAR SCHOOLS.

The following table shows the general statistics of each Grammar School for the year, including the number of pupils graduated: —

Grammar Schools.	Whole No. registered.	Average No. belonging.	Average daily attendance.	Per cent. of attendance.	Number graduated.
Allston	676	536	490	91.4	28
Harvard	384	465	436	93.8	27
Putnam	406	345	319	92.65	17
Shepard	382	339	306	90.3	16
Thorndike	546	355	328	92.12	20
Washington	516	446	414	92.74	28
Webster	712	541	481	88.99	20
Totals	3,622	3,027	2,774	91.6	156

There is little in the history of the Grammar Schools for the year which calls for special mention. In the last Annual Report some very important suggestions were made, touching the work of these schools; and recently an effort has been made to modify the course of study in accordance with those suggestions. To gain additional time for other subjects, the amount of text-book work in grammar, spelling, and Colburn's Arithmetic has been somewhat abridged, but it may be doubted whether these changes will

give the desired relief. We need more time for reading. Many of the pupils have no acquaintance with books outside of the school-room; and such pupils cannot be taught to read with fluency, or with intelligence, unless considerable time be given to the subject. They must read, in order to learn to read.

An excellent plan, as was suggested in the last Annual Report, is to substitute, so far as possible, for the regular reading-book, any interesting reading matter that can be obtained; but this will not, of itself, produce good readers. Time and earnest effort are both requisites in accomplishing this object.

With the present unsatisfactory results in many of the branches now taught, much of which is chargeable to the limited time given to them, and with many new subjects, already knocking for admission to our Grammar Schools, it becomes important to re-examine our course of study, our text-books, and our methods of instruction, that the wisest policy may hereafter be pursued.

In accordance with suggestions made one year ago, an amendment to the Regulations has been adopted, providing that diplomas shall be given to those pupils who complete the prescribed course of study in the Grammar Schools. It is hoped that positive advantages will be derived from the adoption of this rule.

An effort was made early in the year to obtain pianos for the Grammar Schools, but, like similar attempts in previous years, it failed.

HIGH SCHOOL.

By recent changes in the High School building, accommodations are secured for about four hundred pupils. The school has now ample room to meet its present wants.

Among the regular studies of the school, drawing, under a most successful teacher, now holds a prominent place. It is a required study in all the classes with the exception of the first college class. The results thus far have been most satisfactory. Some scholars, unsuccessful in other studies, have done well in this; and through the encouragement which they have thus received, they have been stimulated to better work and better results in every other department.

The changes in the classical course a few months since contemplate five years in the preparation of the college classes; and

in the present programme French and physics are included as required studies. Those pupils who are able to take four studies instead of three, can complete the course in four years, as formerly.

By a recent vote of the High School Committee, the modern pronunciation of Latin has been adopted throughout the school.

Vocal music is not now taught in the High School, but measures should immediately be taken to provide regular and systematic instruction in this branch.

Your attention is also called to another matter of, at least, equal importance. At present, reading, as an elocutionary exercise, receives very little attention; and, in fact, instruction in vocal culture is unknown.

For the sake of the pupils themselves, as well as on account of our other schools, in which so many of the graduates of the High School are hereafter to be instructors, we ought to have thorough instruction in this subject.

The library belonging to the school now numbers about 3,500 volumes; and in order that it may be fully available to the members of the school, it is necessary that a new catalogue of the books be prepared. This should be attended to immediately.

The High School is fully sustaining its high reputation as a classical school, while in the English department the work is equally excellent. With the two separate courses, — the full English course of four years, and the shorter course of three years — with the freedom allowed in the election of studies, the High School offers superior advantages to those who desire to lay the foundations of a thorough education, as well as to those who wish to prepare more immediately for active business.

It is a fact of much significance that the number of High School pupils who annually enter the Institute of Technology in Boston is about the same as the number fitted for college; showing that the work of the High School as a preparation for an advanced English or scientific course is well appreciated.

TRAINING SCHOOL.

The class in the Training School at the present time numbers twenty pupils, and the Practice School has nearly its complement of members.

All the work done in the Training School looks more or less directly to the one end of supplying the Cambridge schools with able and intelligent teachers.

This work divides itself naturally into two distinct kinds: study as to how to do, and the actual doing of school work. With regard to the former, the studies pursued in the Primary and Grammar Schools are taken up grade by grade, and examined, first, — and as briefly as is consistent with thoroughness, — with reference to their inherent principles; and, secondly, with regard to methods of teaching them. And in this connection the question very properly comes of the application of the methods to the text-books and programmes now in use in Cambridge. It is thought that in this way the future teachers may work, not only with correct plans and principles of teaching, but with the details of special subjects advantageously arranged in the mind. Systematized object-teaching, as the natural method in education, and as illustrative of true principles in all teaching, is carefully studied in all its forms, — color, size, weight, shape, &c., as learned from, and applied to objects, qualities of material substances, and objects themselves with regard to their individual details.

The work of teaching in the Practice School is carried on with every advantage. The school is large, affording to the practising teachers classes of sufficient size, and the children themselves represent fairly the average Primary School. As an assistance in the work of teaching, the young ladies observe the work of the teachers of the school; and in this way learn the valuable lesson, how and what to observe as teachers.

While a Training School cannot rightfully take into its curriculum any studies having for their sole purpose the individual culture of its pupils, it is yet found advisable to pay some attention to studies other than those already mentioned. Every day more is demanded of teachers, in the way of intelligent teaching; and the intelligent teaching of our time seems to be characterized particularly by one happy symptom, — the tendency to simplify the beginnings of natural science so that little children may have some real knowledge of, at least, plants and animals, which are the familiar representatives of natural science to them. But it is only the student of science who can properly simplify it, and therefore

the importance of a systematic study of zoölogy and botany — so far as they may be unfamiliar — by those intending to be teachers.

That it may not be left to the inexperience of teachers to discover, with labor to themselves, and with injury to their pupils, the laws which govern mind and body, the subjects of intellectual science and physiology are included in this course. The development of the mental powers in the average child is so sure to be in certain chronological order, that the facts might almost be tabulated for a teacher's daily guidance. A knowledge of these is of the highest importance to success in teaching. Many a lesson is a failure from the simple fact that the teacher has overestimated the reasoning faculty in the child, has miscalculated his power of abstraction, or has undervalued the hold upon him of things actually seen, touched, tasted, or heard.

Equally many a restless school is simply a school, too hot, too cold, or too stifled, — the important question of moral discipline, as well as that of health, having a direct dependence upon physiological facts.

An important adjunct to a teacher's usefulness in the schoolroom is the power to draw on the blackboard with facility, even though it be hastily and roughly. If she can sketch readily, and correctly, a butterfly, bird, beast, a house, chair, table, pitcher, or vase, to illustrate the reading, the number, or the object-lesson, she has a delightful and convenient substitute for objects themselves, in cases when it may be impossible to obtain them. Children have naturally a strong creative instinct, and take an always new pleasure in watching a picture grow up under the teacher's fingers; and she has, therefore, in this simple accomplishment, a strong hold on the interest of her class. This involves no question of artistic talent, but simply such a training — possible for all — of the eye and hand as shall lead to the production of simple outline forms. The method in use in the Training School is the invention of a German artist, and though but little known in this country, has been very much admired in Germany for its simplicity and efficiency. Many years ago Horace Mann made an effort to introduce it into some of the Massachusetts schools, but it was in advance of the needs of the schools, as then understood, and met with no encouragement. The correct teaching of this

method supposes each pupil supplied with a set of twenty blocks, constructed on the measure of a cubic inch. These are grouped in various ways, from the simplest arrangement of a few, to the most complicated arrangement of all. Each pupil draws simply what she *sees*, beginning with the front faces of blocks placed parallel to her, and progressing by making use of every possible position into which rectangular blocks may be placed. She thus learns, by actual practice, the rules of parallel and oblique perspective; her eye is educated to a critical perception of the appearance of objects, and her hand trained to express in lines the apparent proportions of her subject. When we consider how many familiar objects may be drawn upon rectangular prisms as construction lines, we see at once that the teacher has a power of object-drawing which is the natural outgrowth of this elementary practice.

Perhaps, as regards the general work of the school, no better information can be given than is included in a statement of the subjects which come into the yearly programme: —

Study of methods of teaching, — including an examination of the fundamental principles of the subject itself, — in Reading, Spelling, Writing, Arithmetic, through the Grammar School programme; Geography, in all its distinct branches; Color, Form, Objects, Size, Weight, Sound, which, of course, includes Music; Language, which, in its advanced steps, is Grammar; Human Body, Animals, Plants; Drawing (Bartholomew's, Krusi's Inventive, Walter Smith's Free Hand, and Kindergarten).

Also the following special subjects: —

Zoölogy, including Physiology, Botany, Intellectual Science, School Discipline, School Government, School Regulations of the City of Cambridge.

A large portion of the time is taken for the teaching and discipline of the Primary classes. A considerable part also for observing the teaching of others; and, when their progress makes it advisable, visits to other schools are allowed.

EVENING SCHOOLS.

It has long been felt that we ought to have more definite information in regard to the work of the Evening Schools; that we ought to know what classes of the community they are reaching,

and what benefit may reasonably be expected from them. During the present term circulars have been sent to the teachers of these schools, requiring the answers to certain specified questions. These questions required the *name* of the pupil, his *age*, *residence*, *birthplace*, *occupation*, length of time he had resided in Cambridge; if from abroad, how long he had been in this country; whether he had attended school in Cambridge or elsewhere, and if so, how long, *when he left school*, and what studies he had pursued.

Owing to the continued absence of many who were connected with the schools at the beginning of the term, the above facts have been obtained with reference to but two hundred and twenty-five pupils, out of a total of three hundred and forty-three belonging. Of these, one hundred and eighteen were less than sixteen years of age, fifty-nine were between the ages of sixteen and twenty, thirty-six between twenty and twenty-five, six between twenty-five and thirty, three between thirty and thirty-five, two between thirty-five and forty, and one more than forty. From one of the schools for women thirty-six are reported, thirty-two of whom are over sixteen years of age, and of these twenty-four are over twenty.

As might be expected, the occupations of the women are much less various than those of the men; although it is found that eight different branches of business are represented by them.

Among the men almost every conceivable kind of occupation has a place; even the boys, less than sixteen years of age, being employed in twenty-six distinct kinds of work. And it may be of interest to those who believe that every child has a right under the law of the State to demand a portion of each year, until he is fifteen, as school time, to know that many of these boys left school at the age of ten or eleven years, and have never been present a day since. The Evening School, in the absence of any thing better, will do much for this unfortunate and deeply injured class of children; but it was never intended that it should take the place of the day school, and it has no right to attempt it.

The legitimate work of an elementary evening school is to furnish instruction to those above the ages of fourteen or fifteen, who were deprived of the advantages of an early education, and it is a

source of satisfaction to see such persons avail themselves of its privileges; but there are few sadder sights than that of a child, forced by the avarice or neglect of parents to hard and unrelenting toil during the day, and then sent into the evening school for the paltry benefits that its four hours per week can furnish. There has been a demand the present year for instruction in branches somewhat higher than those heretofore taught in these schools. There are many in this city who were compelled to leave the schools at one stage or another of their course, who would doubtless attend an Evening High School, and would be greatly benefitted thereby. A class for such pupils should be opened the coming year.

The Industrial Drawing School, which has been very successfully carried on for two years, is just at present temporarily suspended; but the sessions will be resumed at the earliest moment that permanent quarters can be obtained, where articles of value belonging to the school may be properly arranged, and where the different classes may have suitable accommodations for their work.

An order has passed authorizing the purchase of models, casts, and copies of various kinds for this school, and they will doubtless be received at an early day.

It has occurred to me that the standard fixed for the different grades of our schools can, to some extent, be shown by giving the questions which were used in the promotion of the various classes at the close of the summer term in July. It might be interesting to speak of the promotions themselves, — what elements were considered in making up the final results, &c., — but this must be left for the present. As regards the questions, attention is especially called to the requirements upon the papers marked "Spelling and Sentence-writing." It will be seen that considerable practice is expected in sentence-writing in all its forms, including letter-writing, writing of business forms, — such as receipts, bills, promissory notes, &c., — while, in all, careful attention is paid to the more common rules of capitalization and punctuation.

Respectfully submitted.

E. B. HALE,

Superintendent of Public Schools.

GOVERNMENT

OF

THE CITY OF CAMBRIDGE.

1873.

MAYOR.

HON. ISAAC BRADFORD.

ALDERMEN.

GEORGE R. BRINE,
JAMES H. COLLINS,
CURTIS DAVIS,
HAMLIN R. HARDING,
EDWARD KENDALL,
ISAAC S. MORSE,
ROBERT L. SAWIN,
SAMUEL SNOW,
DANIEL H. THURSTON,
SAM'L. F. WOODBRIDGE.

ALDERMEN, BY WARDS.

Ward I. Aldermen MORSE and SNOW.
Ward II. Aldermen HARDING and THURSTON.
Ward III. Aldermen BRINE and SAWIN.
Ward IV. Aldermen DAVIS and KENDALL.
Ward V. Aldermen COLLINS and WOODBRIDGE.

CLERK.

JUSTIN A. JACOBS.

COMMON COUNCIL.

ALVARO BLODGETT, *President.*

Ward I.

FRANK CORCORAN, FRANK D. WHEELER,
CHARLES C. READ, FRANCIS H. WHITMAN.

Ward II.

ALVARO BLODGETT, SAMUEL L. MONTAGUE,
G. C. W. FULLER, EDWARD H. NORTON.

Ward III.

JOHN CLARY, GEORGE H. HOWARD,
THOMAS GRIEVES, JOHN F. HUDSON,
JOHN MCSORLEY.

Ward IV.

AUGUSTUS P. CLARKE, JOHN STONE,
LEANDER M. HANNUM, RICHARD F. TOBIN.

Ward V.

FRANCIS IVERS, GEORGE F. PIPER.

CLERK.

J. WARREN COTTON.

PAGE.

HARRY H. KNIGHTS.

CITY CLERK.

JUSTIN A. JACOBS.

CITY MESSENGER.

ROLAND LITCHFIELD, JR.

COMMITTEES OF THE CITY COUNCIL.

JOINT STANDING COMMITTEES.

ON FINANCE.

The Mayor.

Aldermen.
Isaac S. Morse,
James H. Collins.

Common Council.
The President,
Francis H. Whitman,
Augustus P. Clarke,
G. C. W. Fuller,
Francis Ivers,
John F. Hudson.

ON PUBLIC INSTRUCTION.

Aldermen.
Samuel Snow,
Hamlin R. Harding.

Common Council.
The President,
John Stone,
Charles C. Read,
George F. Piper.

ON ORDINANCES.

Aldermen.
Hamlin R. Harding,
George R. Brine.

Common Council.
Charles C. Read,
Francis Ivers,
Frank Corcoran.

ON ACCOUNTS.

Aldermen.
Hamlin R. Harding,
Robert L. Sawin.

Common Council.
Richard F. Tobin,
John Clary,

ON PUBLIC PROPERTY.

Aldermen.
James H. Collins,
Daniel H. Thurston.

Common Council.
Leander M. Hannum,
John Clary,
Samuel L. Montague.

ON THE ALMSHOUSE.

Aldermen.	Common Council.
Curtis Davis,	Samuel L. Montague,
Isaac S. Morse.	John F. Hudson,
	George F. Piper.

ON ROADS AND BRIDGES.

Aldermen.	Common Council.
Samuel F. Woodbridge,	John McSorley,
Daniel H. Thurston.	Edward H. Norton,
	Leander M. Hannum.

ON SEWERS AND DRAINS.

Aldermen.	Common Council.
Edward Kendall,	Francis H. Whitman,
Samuel Snow.	George H. Howard.

ON FUEL.

Aldermen.	Common Council.
Curtis Davis,	G. C. W. Fuller,
James H. Collins.	George H. Howard.

ON LAMPS.

Aldermen.	Common Council.
Isaac S. Morse,	Edward H. Norton,
Curtis Davis.	Thomas Grieves,
	George F. Piper.

ON WATERING STREETS.

Aldermen.	Common Council.
Daniel H. Thurston,	John McSorley,
George R. Brine.	Edward H. Norton,
	Frank D. Wheeler.

ON PRINTING.

Alderman.	Common Council.
Hamlin R. Harding.	John Stone,
	Frank Corcoran.

ON THE FIRE DEPARTMENT.

Aldermen.	Common Council.
Robert L. Sawin,	Richard F. Tobin,
Samuel F. Woodbridge.	Thomas Grieves,
	Frank D. Wheeler.

ON CITY ENGINEERING.

Aldermen.	Common Council.
George R. Brine,	Francis H. Whitman,
Isaac S. Morse.	Richard F. Tobin,
	Francis Ivers.

ON ASSESSORS' DEPARTMENT.

Alderman.	Common Council.
Isaac S. Morse.	Augustus P. Clarke.
	John Clary.

JOINT SPECIAL COMMITTEES.

ON SOLDIERS AND THEIR FAMILIES.

Aldermen.	Common Council.
Edward Kendall,	Augustus P. Clarke,
Robert L. Sawin.	Francis Ivers,
	Frank Corcoran,
	John McSorley.

Standing Committees of the Board of Mayor and Aldermen.

ON POLICE.

The Mayor,	Isaac S. Morse,
Edward Kendall,	George R. Brine.

ON THE FIRE DEPARTMENT.

Robert L. Sawin, Samuel F. Woodbridge,
Daniel H. Thurston.

ON ROADS AND BRIDGES.

Samuel F. Woodbridge, Daniel H. Thurston,
George R. Brine.

ON SEWERS AND DRAINS.

Edward Kendall, Samuel Snow,
Robert L. Sawin.

ON LICENSES.

Isaac S. Morse, Daniel H. Thurston,
Robert L. Sawin.

ON HEALTH.

Samuel F. Woodbridge, Edward Kendall,
George R. Brine.

Standing Committees of the Common Council.

ON ELECTIONS AND RETURNS.

Leander M. Hannum, John F. Hudson,
Frank D. Wheeler.

ON BILLS IN THE SECOND READING.

Samuel L. Montague, George H. Howard,
George F. Piper.

ON ENROLLED ORDINANCES.

Charles C. Read, John Stone,
Thomas Grieves.

Clerk of Committees.

J. Warren Cotton.

Board of Health.

THE MAYOR AND ALDERMEN.

Health Officers.

George H. Copeland, Benjamin F. Bridden,
Amos Jones.

Surveyors of Highways.

The same persons who compose the Board of Mayor and Aldermen.

Auditor of Accounts.

Justin A. Jacobs.

Treasurer.

Joseph Whitney.

Assessors.

Artemas Z. Brown, Andrew J. Green,
Levi L. Cushing, Jr.

Assistant Assessors.

Charles H. Hunnewell, Ozias Clark,
Rufus Lamson, Benjamin F. Nourse,
James H. Cutter.

School Committee.

Isaac Bradford, Mayor, *ex officio*, *Chairman*.

Ward I.

Henry P. Walcott, Alexander McKenzie,
Andrew P. Peabody.

Ward II.

Edward R. Cogswell, Henry Hinckley,
John W. Hammond.

Ward III.

——— ——— Anson P. Hooker,
Samuel W. McDaniel.

Ward IV.

William A. Munroe, George R. Leavitt,
George E. McNeil.

Ward V.

Philip R. Ammidon, William A. Start,
William S. Apsey.

Secretary.

W. W. Wellington.

Superintendent of Schools.

Edwin B. Hale.

Overseers of the Poor.

The Mayor, *ex officio*, *Chairman*.

Sylvanus M. Parsons, Benjamin F. Wyeth,
Alfred L. Barbour, Joseph Newmarch,
Lewis B. Guyer, Jeremiah H. Mulcahy.

Clerk.

Benjamin F. Wyeth.

Warden of the Almshouse.

Joseph W. Averill.

Physician of the Almshouse.

James R. Morse, M.D.

Cambridge Cemetery.

Commissioners.

The Mayor, *ex officio*.

John C. Farnham, Curtis Davis,
George S. Saunders, John M. Tyler,
George T. Gale.

Superintendent.

James K. Farwell.

Trustees of Dana Library.

The Mayor, *ex officio*, *Chairman*.

Alderman. Common Council.

Hamlin R. Harding. George F. Piper.

Citizens at Large.

Charles Deane, Anson P. Hooker,
John S. March.

Librarian. Secretary.

Miss Caroline F. Orne. George F. Piper.

Cambridge Water Board.

The Mayor, and President of the Common Council, *ex officio*.

Henry L. Eustis, Samuel Slocomb,
George P. Carter, J. Warren Merrill (President),
Chester W. Kingsley.

Clerk.

Justin A. Jacobs.

Trustees of Sinking Fund of Water Loan.

The Mayor, City Treasurer, and the President of the Common Council.

Commissioners on Sinking Funds of the City.

The Mayor, City Treasurer, Alderman Morse, and the President of the Common Council, *ex officio*.

John Brewster, John M. Tyler,
Lewis Hall.

Superintendent of Water Works.

Samuel W. Dudley.

Water Registrar.

Abiel F. Fifield.

Trustees of the Sanders Temperance Fund.

The Mayor, and President of the Common Council, *ex officio*.

Alderman.	Common Council.
Isaac S. Morse.	Augustus P. Clarke,
	Thomas Grieves.

Trustees of the Dowse Institute.

The Mayor, and President of the Common Council, *ex officio*.

Charles Deane, John C. Dodge,
William W. Wellington.

Representatives in General Court.

George P. Sanger, Joshua B. Smith,
John W. Hammond, Asa P. Morse,
Samuel W. McDaniel.

Police Court.

Standing Justice.

JOHN S. LADD.

Special Justices.

Henry W. Muzzey.
Woodward Emery.

Clerk.

Thomas McIntire.

City Solicitor.

HORATIO G. PARKER.

City Engineer.

JOSIAH G. CHASE.

Commissioner on West Boston and Craigie's Bridges.

EZRA PARMENTER.

Superintendent of Streets.

GEORGE L. CADE.

Superintendent of Lamps.

ROLAND LITCHFIELD.

Board of Engineers.

Chief Engineer.

PATRICK H. RAYMOND.

Assistant Engineers.

First Assistant	Thomas J. Casey.
Second Assistant	Albert Norris.
Third Assistant	Daniel O'Connell.
Fourth Assistant	John P. Farmer, Jr.

Clerk of the Board.

John P. Farmer, Jr.

Police Department.

Chief of Police.

GEORGE H. COPELAND.

Captains of Police.

DISTRICT I.
Timothy Ames.

DISTRICT II.
William Twist.

DISTRICT III.
John L. Boynton.

Captain of Night Police.

Frederick W. Hagar.

Policemen.

DISTRICT I.

Thomas D. Cook,
James B. Morse,
Micah W. Cook,
Andrew Sproul,
Andrew G. Smith,
George A. Marston,
Benjamin Kennard,
Moses M. Child,
L. J. Cloyes,
John S. Milliken,
Leonard Shackford,
Daniel Callahan,
Melancthon W. Clark,
John Le Barron,
Charles W. Ingalls,
William Storer,
Frederic B. Pullen,
Albert D. Cleveland.

DISTRICT II.

Benjamin F. Bridden,
Daniel Sherman,
James H. Parks,
George Wood,
George S. Dudley,
Warner W. Simonds,
Thomas H. Lucy,
John Coleman,
Luther Hapgood,
Simon D. Hiscock,
Rufus S. Downe,
Mark J. Folsom,
Benjamin F. Livingston,
Charles B. Jones,
James E. Murray,
John Little.

DISTRICT III.

Amori Benson, Jr.,
William Mullett,
Dennis Corcoran,
Moses W. Hooper,
John F. Murray,
Matthew R Moore,
Amos Jones,
David N McCleary,
Stephen E. Day,
John Collier,
Warren A. Eaton.

Special Policemen.

P. H. Raymond,
Thomas J. Casey,
Joseph H. Marvin,
Samuel W. Dudley,
Daniel O'Connell,
John P. Farmer, Jr.,
Thomas H. Eames,
Edward F. Belcher,
Roland Litchfield,
John Fitzgerald,
Charles L. Russell,
William L. Locklin,
G. C. W. Fuller,
Andrew Fogg,
J. L. P. Ackers,
Charles H. Wiggin,
Edward T. Fairfield,
James T. Sell,
John H. Marcy,
William McKeever,
Joseph A. Cheney,
Levi F. Babbidge,
B. A. Brown,
C. W. Folsom,
Russell L. Towner,
Lucius A. Buck,
James F. Jefferds,
Leonard Bacon,
Joseph W. Averill,
Roland Litchfield, Jr.,
James C. Wilder,
Thomas McIntire,
James K. Farwell,
Hiram Nevons,
James M. Learned,
Moore R. Homer,
George Henderson,
Albert Norris,
George Dale,
Otis Dennison,
Jesse H. Kittredge,
Thomas W. Penney,
Ebenezer Towle,
George Smith,
Charles P. Allen,
Samuel F. Hunt,
George J. Sutton,
Joseph Bebo,
Alexis Brusseau,
Anthony Chalifrau,
Patrick Dunnigan,
Abraham Borden,
John S. Stafford,
Thomas Cowen,
Henry R. Lee,
Noah M. Cofran,
Mark H. Appleby,
John Mahady,
Alex. F. Shepherd,
Edward E. Farrar,
William Hunnewell,
J. S. Gray,
Daniel R. Melcher,
John Hughes,
Frank Goudraw,
Fred. H. Greenwood,
James Nolan,
Frank J. Curtis,
William J. Dolloff,
Wells Simpson,
Edwin Fairbank,
William H. Fitzpatrick.

Fire Police.

George S. Pike,
Moses Ricker,
John Fitzgerald,
Thomas M. Howard,
W. T. Bryant.

Truant Officers.

George H. Copeland,
John L. Boynton,
Amori Benson, Jr.,
Mark J. Folsom,
Moses M. Child,
Thomas D. Cook,
George S. Dudley.

Constables.

George H. Copeland,
William Twist,
John L. Boynton,
John C. Burdakin,
Thomas Work,
Thomas McIntire,
Frederick A. Lull,
Charles H. Hunnewell,
Charles J. Adams,
James F. Jefferds,
Peter Rice,
William McKeever,
Warner W. Simonds,
Thomas D. Cook,
Charles L. Russell,
Benjamin King,
Patrick H. Raymond,
Ira Taylor,
Thomas T. Ferguson,
Timothy Ames,
John Cahill,
M. S. Busnach,
Augustus P. Griffing.

Superintendent of Burial Ground.

Ward I.

Benjamin F. Wyeth.

Undertakers.

Benjamin F. Wyeth,
Roland Litchfield,
Samuel F. Hunt,
Thomas Devens,
John W. Coveney,
William Casey,
C. Henry Lockhart,
Alvah A. Hadley,
Benjamin J. Hoyt,
W. A. Taylor,
Judson Litchfield.

Auctioneers.

Samuel R. Knights, William A. Munroe,
John C. Farnham, Samuel C. Knights,
John L. Porter, Jeremiah W. Coveney,
Edward Burnham, James C. Wilder,
George C. Hosmer, John Cahill,
George O. Knox.

Measurers of Wood and Bark.

John R. Taylor, Benjamin J. Hoyt,
Francis H. White, J. Henry Wyman,
John F. Brine.

Fence-Viewers.

George B. Lothrop, Abiel Goss,
Abel Stevens.

Field-Drivers.

Andrew Sproul, Benjamin F. Bridden,
Timothy Ames, John Coleman,
Thomas D. Cook, Amori Benson, Jr.,
James S. Milliken, George A. Marston.

Pound-Keepers.

James Gilligan, Thomas D. Cook,
George A. Marston.

Fish Officers.

Thomas D. Cook, Joseph W. Averill,
Andrew Sproul.

Hay Weighers.

Otis S. Brown, Francis H. White,
William C. Brooks, Joseph Burridge,
William H. Dodge, John F. Brine.

Coal Weighers.

James F. Jefferds, William A. Hunnewell,
Joseph Burridge, J. Henry Wyman,
John F. Brine, William C. Brooks,
Thomas McIntire, Jones Valentine,
Alfred H. Wellington.

Weigher of Boilers and Heavy Machinery.

Joseph Burridge.

Weighers.

Joseph W. Averill, H. P. Ross,
Patrick Dunnigan, James H. Reardon,
Edmund Reardon, Henry Hooker.

Sealer of Weights and Measures.

John Cahill.

Inspector of Milk.

John Cahill.

Surveyors of Mechanics' Work.

William S. Barbour, William A. Mason,
John S. Pollard.

Inspector of Charcoal Baskets.

John Cahill.

Measurer of Grain.

John Cahill.

Inspectors of Junk Shops.

George H. Copeland, Amos Jones.

Ward Officers.

Ward I.

WARDEN.
Charles H. Bate.

CLERK.
John Gorman.

INSPECTORS.
Joseph Williams,
George S. Evans,
Joseph R. Pettingill.

Ward II.

WARDEN.
Charles E. Gould.

CLERK.
Harry B. Winnett.

INSPECTORS.
Charles F. Thurston,
James W. Pierce,
John M. Davis.

Ward III.

WARDEN.
Luther L. Parker.

CLERK.
Andrew Fogg.

INSPECTORS.
Otis S. Brown,
John W. Skelly,
Charles A. Austin.

Ward IV.

WARDEN.
James H. Sparrow.

CLERK.
Joshua S. Sanborn.

INSPECTORS.
Albert J. Sawyer,
Henry L. Caldwell,
Charles L. Russell.

Ward V.

WARDEN.
Francis M. Mason.

CLERK.
Francis H. White.

INSPECTORS.
Charles L. Fuller,
Jeremiah Murphy,
Henry K. Parsons.

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